THERMAL MANAGEMENT SOLUTIONS

NORTH AMERICAN CATALOG

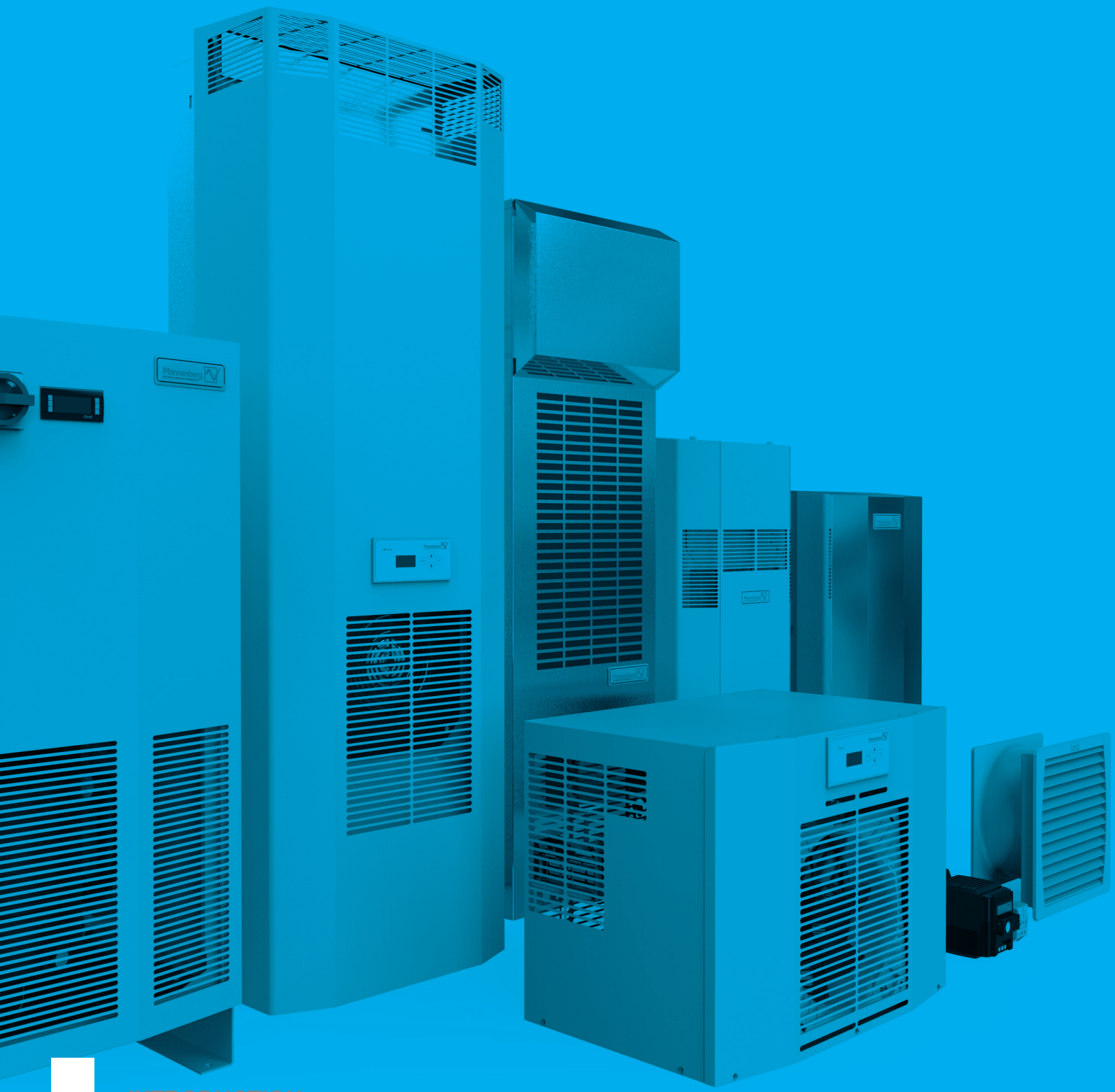
CHILLERS COOLING UNITS HEAT EXCHANGERS HEATERS & THERMOSTATS FILTERFANS 4.0™

PROTECTING PEOPLE, MACHINES AND THE ENVIRONMENT

Pfannenberg

ELECTRO-TECHNOLOGY FOR INDUSTRY

Critical Thermal Management Solutions
for Maximum Uptime & Efficiency



Why Pfannenberg?

For more than 60 years, we have been helping guarantee production safety for companies throughout the world. Our mission is to satisfy the increasing demands of modern industries by developing progressive ideas for the protection of electronics. This led to the invention of the Filterfan® and other innovations in the field of thermal management for electrical enclosures and process cooling.

A spirit of invention and German engineering genius are not our only strengths. We are also proud of the close relationships we maintain with our clients and their industries.

Pfannenberg's broad experience in delivering individual thermal management solutions positions us to provide unique, innovative benefits to our clients. Through our wide product range and a consultative team approach we develop customized high quality, cost effective, energy efficient solutions for demanding industrial requirements. This is the real value for our customers.

This catalog represents a new format for our products and services. We can provide the proper solution for any type of application. Included are our most widely requested products for North America and an overview of our comprehensive solution-orientated consultative successes, industry group applications and worldwide services.

To learn more about how we can help you, contact us today. As one of the few companies around the world to have developed and produced a complete range of industrial thermal management solutions in-house, we have a wide range of expertise to share with you.

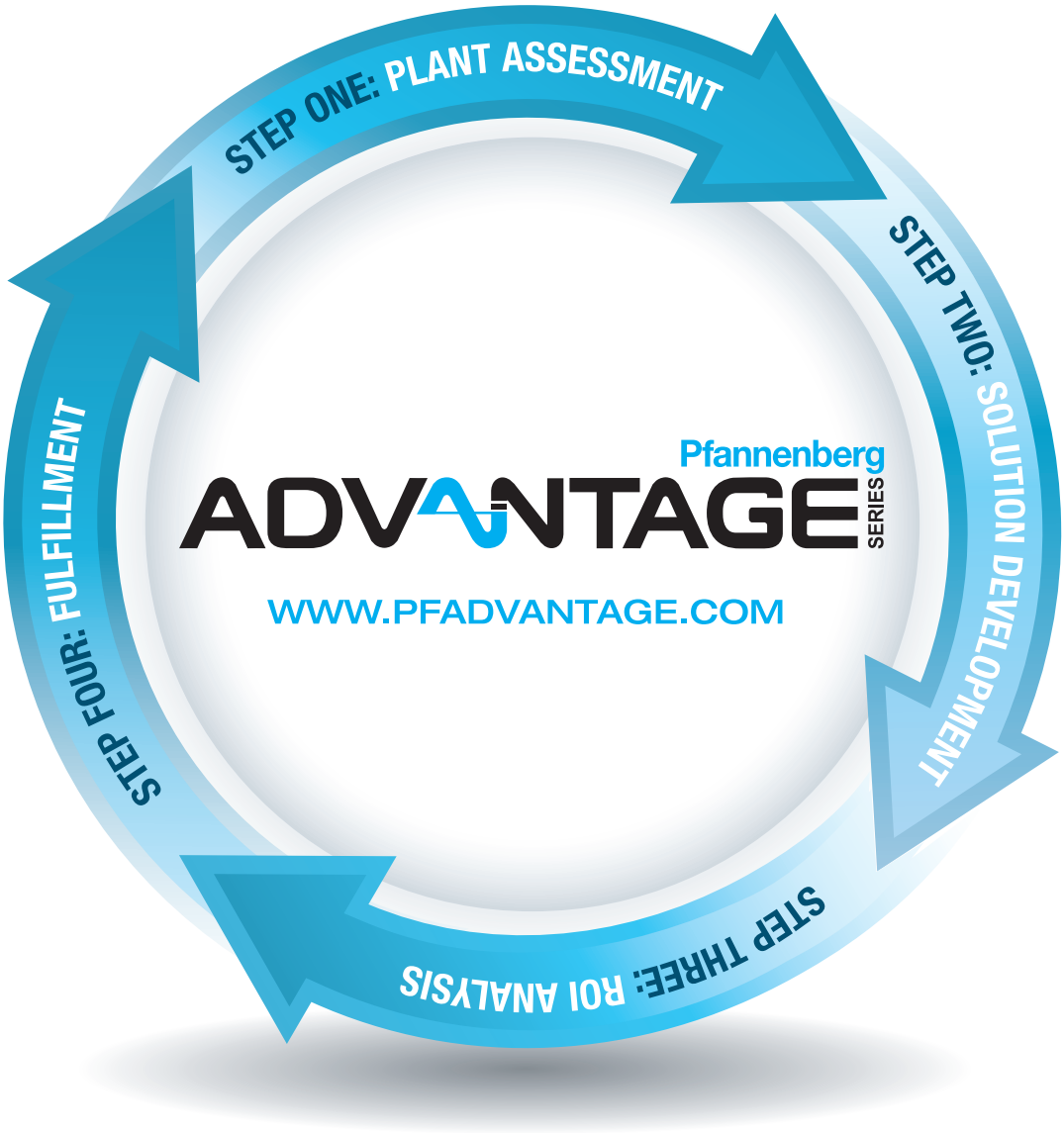
True to our motto "Sharing Competence", we place the knowledge and technical expertise of our engineers and experts at your disposal so that you can find the best possible solutions for your requirements. Today and in the future.

What can we do for you?

Andreas Pfannenberg, CEO

SHARING COMPETENCE

WHAT IS THE PFANNENBERG ADVANTAGE™?



The Pfannenberg Advantage™ follows a results-driven, four-step process that begins and ends with the user.

It's a value proposition which provides solutions to problems encountered by the automation user (plant) that are associated with thermal management products. It allows Pfannenberg to take the experience gained in supplying these products to the machine builder and extend it to the point of use where it can be applied to meet specific challenges, and/or to take advantage of specific opportunities.

Step One: Plant Assessment
Pfannenberg's field engineering team visits the facility to meet with plant personnel and survey the application in order to fully understand specific thermal management challenges

Step Two: Solution Development/ Product Selection
Factory and field personnel work together to develop an application-specific solution using the best products and practices available to meet process requirements.

Step Three: ROI Analysis
Savings associated with energy usage, maintenance, "up-time", etc. are quantified and compared to total project costs to verify solution feasibility.

Step Four: Fulfillment
The complete solution is implemented through the coordinated efforts of an experienced team of factory engineers and local partners, from installation, commissioning & training to preventative maintenance & life cycle service.

Pfannenberg
ELECTRO-TECHNOLOGY FOR INDUSTRY

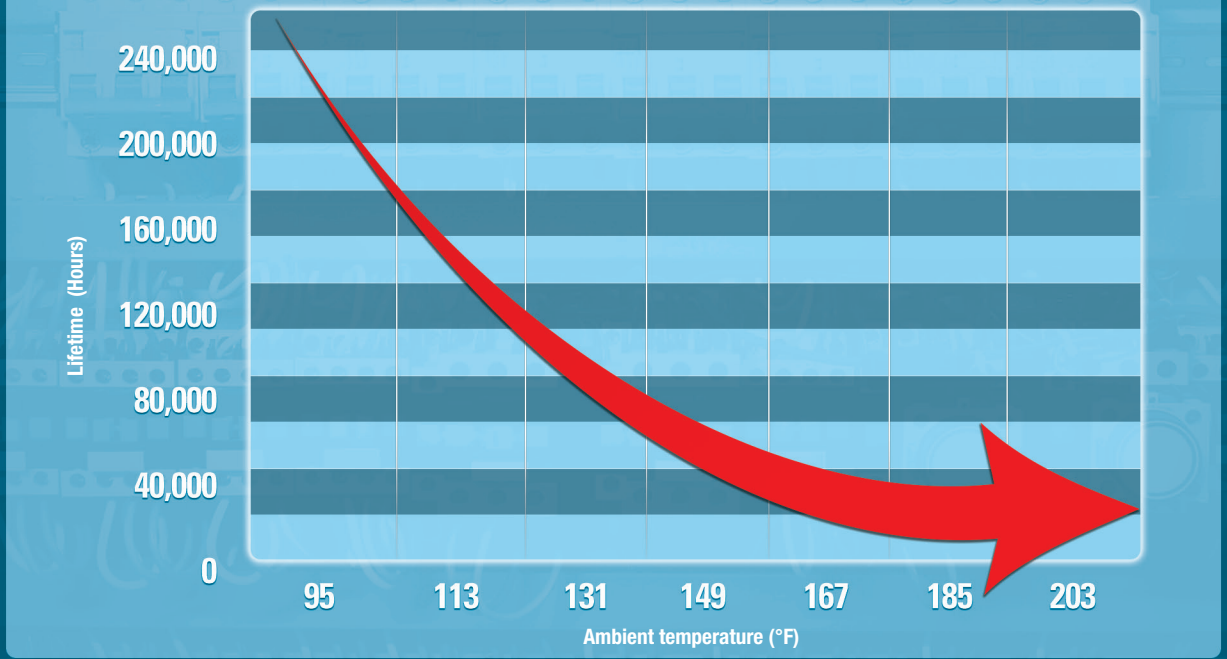
The longevity of critical electronics is ensured with proper enclosure climate control.

Electrical enclosures house high performance components that are critical for the control of today's production processes. These electrical components generate a significant amount of heat. Imagine the consequences when sensitive circuitry, VFDs and PLCs begin to overheat. If not properly managed this high heat leads to premature aging of electrical components and eventual shutdown of systems, leading to downtime and loss of revenue.

To ensure that sensitive electronics maintain their rated life expectancy and that they function reliably, proper regulation of the enclosure climate is necessary. Electronics are typically most efficient in an environment where the humidity is low and the temperature is approximately 95°F. As the temperature in an enclosure rises it can have a lasting effect on the electronics. Tests have shown that an increase in temperature of as little as 18°F shortens the life expectancy of electrical components by more than 50%.

Proper thermal management is necessary. This prevents critical temperature fluctuations, avoids overheating and protects against the formation of condensate. It is essentially the backbone of your entire production process, prolonging the life of your electronics and protecting your investment.

The life expectancy of capacitors fall as the ambient temperature increases.



An increase in temperature of 18°F shortens the life time of electrical components by more than 50%.

For additional technical data, drawings and templates. www.pfannenbergusa.com

Outside the "box" thinking is vital to protect the electronics inside.

A properly selected thermal management solution requires not only an understanding of the climate inside the enclosure but also the environment outside of the enclosure.

It is the ambient conditions around the outside of the enclosure that can have a direct effect on the best thermal management solution chosen for your application.

The environment in the electrical enclosure can be affected by weather conditions, solar radiation or other external temperature sources.

For example: An enclosure placed in an environment that is hostile to a cooling unit may require an air to water heat exchanger. An air to water heat exchanger is not susceptible to the effects of dust and debris that would typically foul a standard air conditioner.

Electronics sensitive to electromagnetic interference, may need a shielded EMC Filterfan®.

An enclosure located outdoors or in a humid environment may require a hygrostat or thermostat and a heater to eliminate the formation of condensate, leading to corrosion and short circuiting.

Contact one of our applications engineers or use our sizing software online at pfannenbergusa.com/pss to determine the proper thermal management solution.

Both internal thermal losses and external conditions make thermal management necessary.

Determining the correct thermal management products for your application.

3 Basic Cooling Methods for Enclosure Cooling:

It is important to understand the types of cooling methods available and the how the ambient conditions may effect the product chosen. Choosing the wrong method may lead to a solution that is undersized or oversized, or fails due to being specified for incompatible ambient conditions.

1 Natural Convection

The use of louvers or grills with filters (see **PFA Exhaust Filters**) can be effective when the amount of heat being removed from your enclosure is minimal. This method usually provides less of a cooling effect than is necessary with today‘s components.

2 Forced Convection

If the installation will be in a clean, non-hazardous environment with an acceptable ambient (outside the enclosure) temperature range, a simple forced-air cooling system utilizing outside air is usually adequate. Combined with an air filter, such devices generally meet the heat removal needs of typical electronic equipment and many electrical applications. An example of forced convection air cooling is Filterfans®.

When can Filterfans® be used for Forced Convection Cooling?

- If the ambient temperature is always lower than the temperature required in the electrical enclosure, then Filterfans® represent an economical solution for thermal management of electrical enclosures.

Important for the use of Filterfans®:

- Use Filterfans® to force the surrounding air into the electrical enclosure, so that a slight overpressure builds up inside the enclosure.
- The surrounding air enters the electrical cabinet exclusively via the Filterfans®, which ensures that it is filtered.
- Install the Filterfans® in the lower third of the electrical enclosure and the exhaust filter as close to the top as possible. This assists the natural convection of the air and avoids hot spots within the enclosure.

For additional technical data, drawings and templates. www.pfannenbergusa.com

3 Closed-loop Cooling

In harsh environments involving high temperatures, wash-down requirements, heavy particulate matter or the presence of chemicals capable of damaging components (NEMA 4 or 12 environments), ambient air must be kept out of the enclosure. Closed-loop cooling consists of two separate circulation systems. One system seals out the ambient air, cooling and re-circulating clean, cool air throughout the enclosure. The second system uses ambient air or water to remove and discharge the heat. Example of closed-loop cooling equipment employed with electronics and process controls are cooling units and heat exchangers.

When are cooling units necessary?

- If cooling cannot be accomplished by the outside air.
- If the temperature required inside the electrical cabinet should be equal to or lower than the ambient temperature.
- If the ambient air is strongly contaminated with oil or conductive dust.
- When higher ingress protection is required (Type rating).

Important for the use of cooling units:

- Ensure a good supply of air intake and outtake from the external circuit of the cooling unit, so that thermal energy can be transferred to the surroundings.
- The lowest temperature inside the enclosure may not necessarily be the best. The 95 °F (35 °C) preset by Pfannenberg represents a good compromise between service life and the accumulation of condensation.

When should air to air heat exchangers be used?

- If the panel temperature is allowed to be higher than the maximum ambient temperature.
- If vapors, particulates or other foreign materials in the environment that must not be allowed to penetrate the enclosure.
- Important for air/air: Air to air units have performances that are rated on the difference in temperature between the ambient and enclosure. This makes this solution ideal for equipment that can take high temperatures or systems in environments with modern ambients.

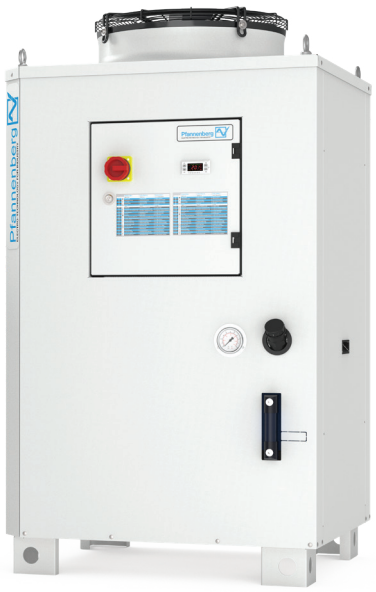
When should air to water heat exchangers be used?

- If a chilled water supply is available.
- If the ambient air cannot be used to provide cooling.
- If a very high IP class is required (up to IP 65).
- If a maintenance-free cooling solution is desired.
- If looking for an energy efficient "green" solution.

Using Chillers for efficient equipment and process cooling.

Understanding How a Chiller Works:

A chiller uses a refrigeration cycle to remove the collected heat from a circulating liquid. As the liquid moves through a system of tubes and pipes it absorbs the heat generated by equipment and processes. This generated heat is then transferred by the liquid back to the chiller where it is dissipated. Fluid is cooled and sent back into the system.



When can a chiller be used for thermal management?

- When higher heat loads that exceed traditional enclosure cooling methods need to be managed.
- When precise temperature control is required as part of the manufacturing process.
- Large fluctuations in heat load requirements need to be managed.
- When efficient cooling is desired, liquid is more efficient for cooling vs. air.
- It allows the source of cooling to be located separately from harsh environments.

Important for the use of Chillers:

- Chillers can be installed indoors if the area around the unit is relatively clean and the air is temperate.
- Locating the chiller outside can be a good option and can improve the efficiency of the chiller depending on temperature.
- Extreme temperatures can cause capacity issues or the need for additional options such as a low ambient package.
- A chiller should be sized as close to the required capacity based on the desired chilled liquid supply temperature and the highest expected ambient temperature.

CHILLER APPLICATION EXAMPLES

Automotive (Manufacturing)	Food & Beverage	Renewable Energy
Spindle Motor Cooling – High speed spindles need continuous cooling to insure accuracy and motor life. Temperature control of the tooling is required for high precision cutting applications.	**Pouch Sealer Cooling** – The heat used to melt the pouch material must be dissipated to allow the joined materials to cool and create the seal before moving the pouch. Efficient liquid cooling accommodates this high speed process.	**Solar Inverter Cooling** – Power inverters are used to convert the DC power created by solar collectors to the AC power that can be transferred to the power grid. Inverters lose up to 3% of their rated capacity in the form of heat and liquid cooling provides reliable thermal management to keep this renewable energy source on line.
Cutting Oil Cooling – Temperature control of the work piece in machining applications is needed to control dimensions. Chillers provide cooling of the recirculated and filtered cutting oil.	**Mold Cooling (Injection, Thermoforming, Blow Molding)** – Plastic molding involves melting (heating) the material to allow it to take the shape of the mold and then solidifying (cooling) it before the mold is opened so the shape is maintained. The use of chilled water allows rapid cooling of the molds between heating cycles in this high speed process.	**Hydrogen Fuel Cell Compressor Cooling** – A byproduct of raising the pressure of hydrogen gas for use in fuel cell "engines" is the heat associated with compression. Recirculated chilled water manages the temperature of both the hydrogen gas and the mechanical compressor.
Hydraulic Oil Cooling – Hydraulic power systems are often the primary driver in manufacturing processes. The heat added to the oil by the hydraulic pump is removed by the chiller either directly, or through an intermediate heat exchanger.	**Baking Process Cooling** – Control for baking processes are normally subjected to the high air temperature and flour-laden environment of the oven system. Cooling control enclosures with chilled water keeps process controls operating in these "hostile" areas.	**Storage Battery Cooling** – Heat is created in the electrochemical process associated with the storage of electrical energy. Maintaining the temperature of the cells by removing this heat increases the overall efficiency of the storage system. Liquid cooling provides a convenient solution regardless of ambient conditions.
Polyurethane Foam Mixer – Cooling is required to remove the heat created by the mixing of the two chemicals in this process. The chiller also provides cooling for the high pressure pumps needed to convey the foam product.	**Glass Inspection Camera Cooling** – The inspection of glass bottles takes place in immediate proximity to this extreme high temperature process. Inspection cameras include a liquid cooled housing that protects the sensitive optics.	

Automation Control Cooling
Automation Control Cooling – Variable frequency drives (VFDs) are used to precisely control the motion in highly automated manufacturing and packaging processes. VFDs can lose up to 3% of their rated capacity in the form of heat, so the enclosures that house them must be continuously cooled. As these enclosures are usually located close to the process machinery, cooling with recirculated liquid provided by a Pfannenberg packaged chiller offers an efficient, low maintenance solution regardless of the process environment.

Combining products to create a complete system solution.

Chillers and PWS Air/Water Heat Exchangers

Use the combination of chillers and air/water heat exchangers to simplify the cooling of your processes, machines and controllers as part of a system based solution. Via a closed pipeline system that uses a highly economical supply of cooled liquid (e.g. water, glycol or oil) as the cooling medium, temperature can be managed within your process and as the cooling medium for the air conditioning of control cabinets. When cooling cabinets with PWS Air/Water Heat Exchangers the thermal management is 100% independent from the ambient temperatures at the installation location.

Filterfans® and Thermostats

When combining a Pfannenberg thermostat with a Filterfan®, the fan can be controlled to turn on and off based on the temperature inside the cabinet.

The benefits to this combined system are:

- Extended fan life.
- Reduced energy consumption.
- Reduced consumables and maintenance.

Improving performance, lowering costs and providing greater reliability in your manufacturing processes and bottom line.

Cooling Units, Heaters, Thermostats and Hygrostats

Adding an accessory such as a heater or thermostat to an enclosure with a cooling unit can help protect electronics from being exposed to temperatures below the recommended operating range. Another benefit to using a heater and thermostat in an enclosure is to protect from the formation of condensation within the cabinet. In a very humid environment where condensation may form at higher temperatures the hygrostat will control the heater based upon relative humidity. As a system; cooling units, heaters, thermostats and hygrostats will ensure that the environment within the enclosure is ideal for performance and service life of the critical electronics.

PSS - Pfannenberg Sizing Software

Online step-by-step product selection tool.

Need Help? Use our free software to find the recommended thermal management solution for your application.

Our Thermal Management will guide you through the sizing process, step-by-step to calculate the correct solution for your application. **The sizing software is available at: https://www.pfannenbergusa.com/pss**

Use your smartphone or tablet's QR Code Reader to access the web version of our sizing software. May not be compatible on all devices. You may also download an app version from the App Store or Google Play.

Also available as an app for iOS and Android. Search for Pfannenberg

Available on the App Store

GET IT ON Google play

Proper thermal management is key to saving resources and keeping electronics (and machinery) up and running on a consistent basis. To provide the best thermal management engineering support in the industry, **Pfannenberg has developed a powerful web-based sizing application containing an easy-to-use interface.** The software can be customized to your applications by allowing you to enter your own components and enclosure styles in the database for easy and fast calculations. The software also accounts for indoor/outdoor applications and assists in calculating heat dissipation within enclosure cabinets.

For additional technical data, drawings and templates. www.pfannenbergusa.com

Selection of the preferred thermal management method, based on various environmental conditions

PRODUCTS			AMBIENT TEMPERATURE				DUST			WATER			SPECIFIC		
			Low <40 °F	Climate Controlled 65-80 °F	Medium 80-100 °F	High 100 + °F	Clean	Moderate	Heavy	Dry	Light (rain)	Washdown	Corrosive	Oily	Sea Air
FILTERFANS®	PF	p.14	○	+	○	-	+	○	-	+	○	○	-	-	-
AIR / AIR HEAT EXCHANGERS	Air/Air ▶ PKS 3000	p. 28	+	+	○	-	+	+	○	+	+	+ ***	○	○	-
COOLING UNITS	Indoor ▶ DTS 3000	p. 40	-	○	+	○	+	○	-	+	-	- *	- *	-	-
	Outdoor ▶ DTS 3000	p. 40	+	○	+	+	+	○	-	○	+	-	○	○	○
	Washdown ▶ DTS 3000	p. 40	+	○	+	+	+	○	-	○	○	+	+	+	+
	€Cool ▶ DTS / DTI 9000 DTT /DTI 6000	p. 62	-	○	+	○	+	○	-	+	-	-	-	○	-
AIR / WATER HEAT EXCHANGERS	Air/Water ▶ PWS 3000	p. 82	+	○	+	+	+	+	+	+	+	+	+	+	+
CHILLERS	CCE	p.110	-	+	+	-	+	○	-	+	○	-	-	-	-
	EB	p.112	○	+	+	○	+	○	-	+	○	-	-	-	-
	EB 250-450	p.114	-	+	+	+	+ **	+	+	+	○	-	-	○	-
HEATERS	FLH / PFH	p.118	+	+	○	-	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

+ Best Option - Consult Factory for Best Solution ○ Good N/A Not Applicable

* W/Rainhood ** Requires Special Options *** Washdown Version

PF/PFA Series Filterfans 4.0™ and Exhaust Filters

Trust in the Original

Otto Pfannenberg's invention of the Filterfan® in 1958 was a milestone in the area of industrial thermal management. As a result of over 50 years of experience and continuous development, Pfannenberg's Filterfans® have evolved into the trusted name for forced convective cooling to circulate and cool the air in your cabinets.

With our flow optimized fins and rotor blades, the Filterfan 4.0™ reaches a particularly high airflow and at the same time provide a NEMA Type 12 system of protection. The flat-profile, uni-colored design complements modern machines and plants.

Pfannenberg's patented click mechanism on our Filterfans 4.0™ have a unique patented 4-corner fastening system enabling safe and quick, tool-free installation allowing the filter medium to be replaced in seconds.

The fluted filter mat's folded structure provides an unrivaled airflow guaranteeing NEMA Type 12 protection, while also extending the filters lifetime 300% longer than conventional filter.

All in all, our Filterfans 4.0™ contain 11 field-proven patented features.

THE TECHNOLOGY OF COOLING

Cooling with Filterfans®

If the installation will be in a clean, non-hazardous environment with an acceptable ambient (outside the enclosure) temperature range, a simple forced-air cooling system utilizing outside air is usually adequate. Combined with an air filter, such devices generally meet the heat removal needs of typical electronic equipment and many electrical applications.

How do I know if a Filterfan® is the right product for my application?

- If the temperature rise inside the enclosure can be higher than the ambient.
- If multiple configurations are needed. Filterfans® can be located in a number of locations within complex enclosure configurations.

Utilizing Filterfans®

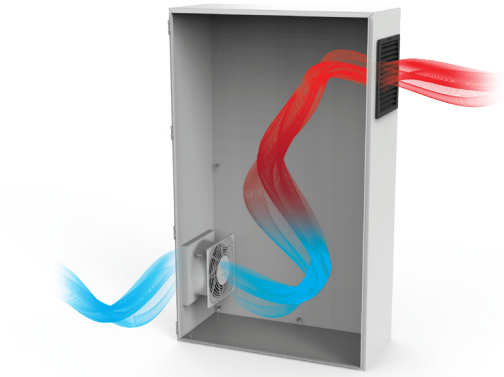
- Always use the Filterfans® to propel the cool ambient air into enclosure.
- Slight positive pressure builds up inside the cabinet so that only air filtered by the Filterfans® flows into the enclosure.
- The air propelled into the cabinet displaces the warm air which exits through the exhaust filter.
- When installing a combination of Filterfans® and exhaust filters, fit the Filterfans® in the lower third of the cabinet and the exhaust filter(s) near the top of the cabinet.

Calculating the required airflow

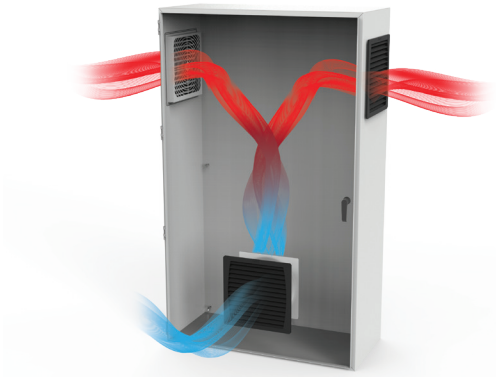
To properly size a Filterfan® it's important to understand how static pressure effects the performance of a fan. See Understanding CFM on the opposite page.

$$V = \frac{1.82\ (P_D)}{\Delta T}\ [cfm]$$

- **V[cfm]:**
  Airflow volume of Filterfans®
- **P_D [Watt]:**
  Dissipation loss: Thermal power generated inside a cabinet by the dissipation loss of components
- **ΔT[°C]:**
  Difference in temperature between the ambient and inside the electronic cabinet



Model No.	CFM (Filterfan® + exhaust filter)
PF11000	11
PF22000	28
PF32000	38
PF42500	74
PF43000	122
PF65000	224
PF66000	295
PF 67000	368



Model No.	CFM (Filterfan® + 2 exhaust filters)
PF11000	12
PF22000	31
PF32000	47
PF42500	79
PF43000	138
PF65000	256
PF66000	335
PF 67000	452

For additional technical data, drawings and templates. www.pfannenbergusa.com

FILTERFANS 4.0™ QUICK SELECTION CHART

Type	Air flow rate[1] CFM[2] (Type 12)	Rated voltage	Cut-out dimensions (HxW)[3] inches (mm)	Approvals UL	cUL	EAC	CSA	CE	Page
PF Series Filterfans 4.0™									
PF 11000	17	115 V / 230 V AC 24 V DC	3.62 x 3.62 (92 x 92)	●	●	●	●	●	19
PF 22000	38	115 V / 230 V AC 24 V DC	4.92 x 4.92 (125 x 125)	●	●	●	●	●	19
PF 32000	65	115 V / 230 V AC 24 V DC	6.97 x 6.97 (177 x 177)	●	●	●	●	●	20
PF 42500	94	115 V / 230 V AC 24 V DC	8.78 x 8.78 (223 x 223)	●	●	●	●	●	21
PF 43000	169	115 V / 230 V AC 24 V DC	8.78 x 8.78 (223 x 223)	●	●	●	●	●	21
PF 65000	297	115 V / 230 V AC	11.49 x 11.49 (292 x 292)	●	●	●	●	●	22
PF 66000	462	115 V / 230 V AC 400 V / 460 V 3 Ø	11.49 x 11.49 (292 x 292)	●	●	●	●	●	23
PF 67000	560	115 V / 230 V AC 400 V / 460 V 3 Ø	11.49 x 11.49 (292 x 292)	●	●	●	●	●	23
PF Slim Line Filterfans 4.0™									
PF 33000 SL	152	115 V / 230 V AC	6.97 x 6.97 (177 x 177)	●	●			●	20
PF 65000 SL	325	115 V / 230 V AC	11.49 x 11.49 (292 x 292)	●	●		●	●	22
PF 67000 SL	427	115 V / 230 V AC 400 V / 460 V 3 Ø	11.49 x 11.49 (292 x 292)	●	●		●	●	23
PTF Series Top-Mounted Filterfans 4.0™									
PTF 60500	206	115 V / 230 V AC	11.49 x 11.49 (292 x 292)	●	●	●		●	24
PTF 60700	324	115 V / 230 V AC 400 V / 460 V 3 Ø	11.49 x 11.49 (292 x 292)	●	●	●		●	24
PTF 61000	441	115 V / 230 V AC	11.49 x 11.49 (292 x 292)	●	●	●		●	24
PTFA Series Top Exhaust Filters									
PTFA 60000	N/A	N/A	11.49 x 11.49 (292 x 292)	●	●	●		●	24
PFA Series Exhaust filters									
PFA 10000	N/A	N/A	3.62 x 3.62 (92 x 92)	●	●	●	●	●	25
PFA 20000			4.92 x 4.92 (125 x 125)	●	●	●	●	●	25
PFA 30000			6.97 x 6.97 (177 x 177)	●	●	●	●	●	25
PFA 40000			8.78 x 8.78 (223 x 223)	●	●	●	●	●	25
PFA 60000			11.49 x 11.49 (292 x 292)	●	●	●	●	●	25

[1] free-blowing

● available ○ pending

Understanding CFM

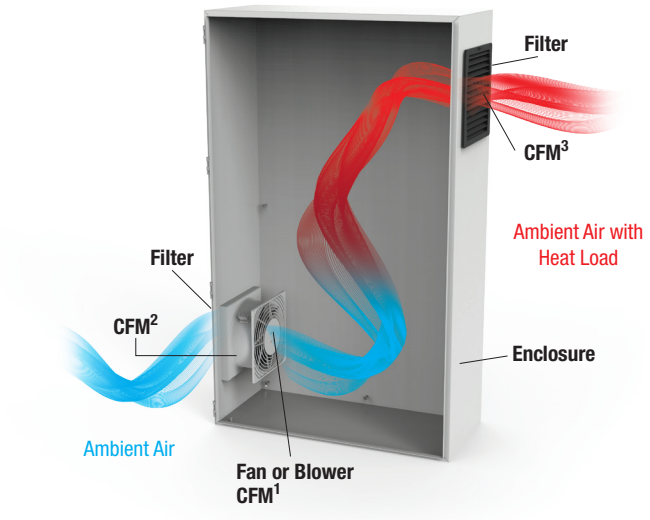
Model No.	CFM[1]	CFM[2]	CFM[3]
PF11000	36	17	11
PF22000	105	38	28
PF32000	105	65	38
PF42500	121	94	74
PF43000	224	155	122
PF65000	489	297	224
PF66000	1024	462	295
PF 67000	1250	560	368

[1] Fan only (unfiltered)

[2] Filterfan® assembly (uninstalled)

[3] Single Filterfan® installed on an enclosure with one filtered exhaust assembly

(Note: Always calculate cooling capacity of Filterfans® with the CFM[3] value.)



FILTERFANS 4.0™

Filterfans® / Exhaust Filters

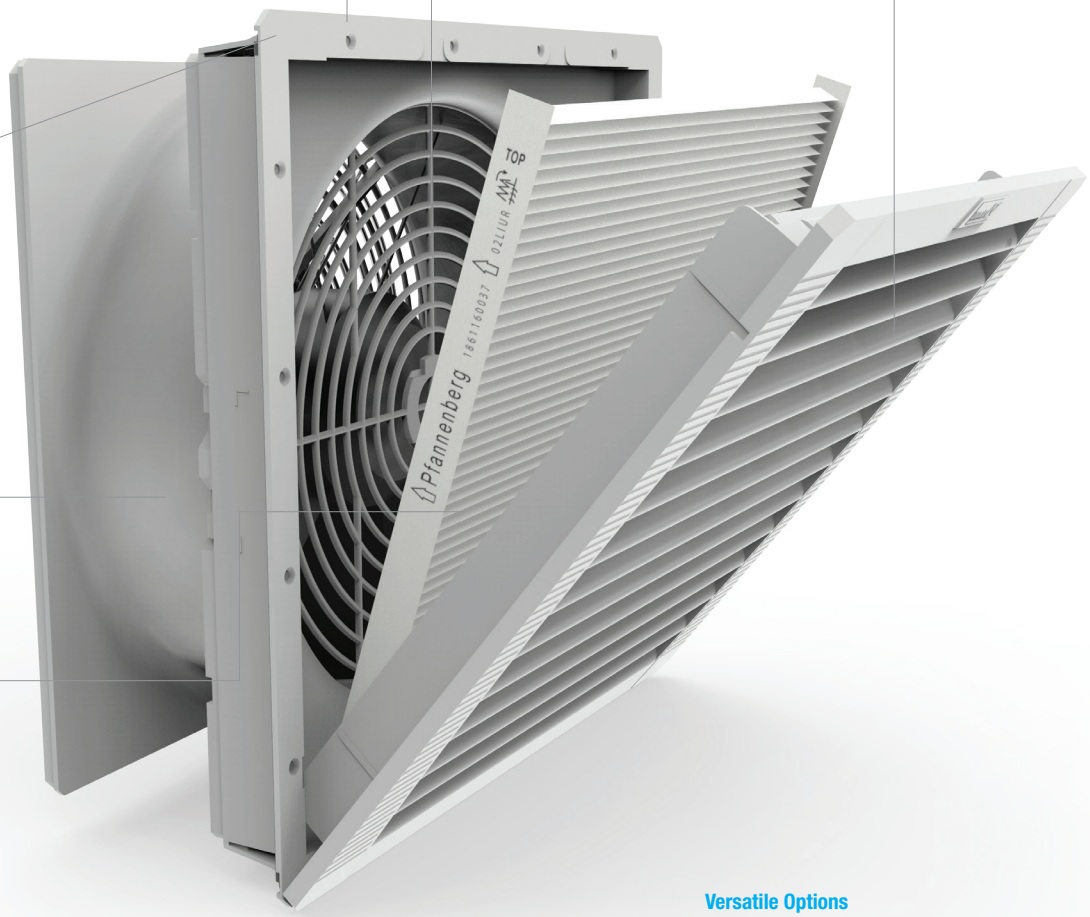
Trust in the Original. Otto Pfannenberg's invention of the Filterfan® in 1958 was a milestone in the area of industrial thermal management. Today Pfannenberg provides a wide range of different solutions for industrial thermal management and is thus one of the few specialists that can provide the appropriate devices for virtually all industrial requirements – worldwide.

NEMA Type 12 Protection
The closed frame design prevents unfiltered air from penetrating the cabinet.

Highest Quality Fans
German manufactured fans that exceed industry standards for quality, performance and service life.

Highest System Airflow Compared to Competitors Filter Fans.
The design of the louvers supports the greatest airflow while further protecting against airborne dust and dirt.

Patented Tool-Less 4 Corner Fastening System
The patented fastening system allows for fast installation (possible to install in seconds) and easy removal reducing MTTR.



Aesthetically Pleasing Design Using Neutral Colors
Available in a standard RAL 7035 Grey and an optional Black color. These units blend in well with the modern styles and colors used for existing machines and systems.

300% Longer Service Time via Patented Fluted Filter Mat
A larger surface area on the filter mat allows for a high filtration level, greater service life and maximum airflow. Saving time and money.

Versatile Options
Options including UV Protected Plastic for use in direct sunlight, EMC shielding to attenuate RF signals and exhausting fans for custom applications.

Globally Compatible
ERP compliant to meet European efficiency directives. Units also comply with additional national and international standards, e.g. TÜV, NEMA, UL, CSA and EAC.

For additional technical data, drawings and templates. www.pfannenbergusa.com

PF SERIES

FILTERFANS 4.0 ™

Pfannenberg
ELECTRO-TECHNOLOGY FOR INDUSTRY

PF 11000

- Airflow rate up to 17 CFM
- System of protection: NEMA type 12
- Cut-out dimensions: 92 x 92 mm

PF 11000 FILTERFANS®

Available voltages ± 10%	115 V, 230 V, 24 VDC	System of protection (UL Listed)	NEMA Type 12 - standard filter
Design (housing and protection against accidental contact)	made of injection-molded thermoplastic, self-extinguishing, UL 94 VO	Filter mat quality class	G 3
Service life L_{10} (+ 40 °C)	52,500 h / 55,000 h / 70,000 h (DC)	Unimpeded airflow	17 CFM
Weight	1.2 lb / .35 (DC)	Airflow rate in combination (PF + PFA 20.000)	11 CFM
Color	RAL 7035 (Lt. Grey) RAL 9011 (Black)	Filtration efficiency	88%
Noise level (EN ISO 3741)	33 dB (A)	**Part no.** * 115 V, Lt. Grey	11611151055
Type of connection	cable, 2-core, length 310 mm	**Part no.** * 115 V, Black	11611151050
Bearing type	sleeve bearing / ball bearing (DC)	**Part no.** * 230 V, Lt. Grey	11611101055
Approvals	UL, cUL, CE, (on request: GOST)	**Part no.** * 230 V, Black	11611101050
Power consumption	11 W / 2.4 W (DC)	**Part no.** * 24 VDC, Lt. Grey	11611801055
Width x height x depth	4.29 x 4.29 x 2.44 in	**Part no.** * 24 VDC, Black	11611801050
		Part no. Spare part filter mats (5 pieces)	18611600029
		Part no. NEMA Type 3R Rainhood *	See page 27 for part no.

PF 22000

- Airflow rate up to 38 CFM
- System of protection: NEMA type 12
- Cut-out dimensions: 125 x 125 mm

PF 22000 FILTERFANS®

Available voltages± 10%	115 V, 230 V, 24 VDC	System of protection (UL Listed)	NEMA Type 12 - fluted filter
Design (housing and protection against accidental contact)	made of injection-molded thermoplastic, self-extinguishing, UL 94 VO	Filter mat quality class	G 4
Service life L_{10} (+ 40 °C)	40,000 h / 37,500 h / 62,500 h (DC)	Unimpeded airflow18	38 CFM
Weight	1.5 lb / .97 (DC)	Airflow rate in combination (PF + PFA 20.000)	28 CFM
Color	RAL 7035 (Lt. Grey) RAL 9011 (Black)	Filtration efficiency	91%
Noise level (EN ISO 3741)	44 dB (A)	**Part no.** * 115 V, Lt. Grey	11622154055
Type of connection	terminal strip / cable, 2 core, length 310 mm	**Part no.** * 115 V, Black	11622154050
Bearing type	sleeve bearing / ball bearing (DC)	**Part no.** * 230 V, Lt. Grey	11622104055
Approvals	UL, cUL, CE, (on request: GOST)	**Part no.** * 230 V, Black	11622104050
Power consumption	20 W /18 W / 5 W (DC)	**Part no.** * 24 VDC, Lt. Grey	11622804055
Width x height x depth	5.71 x 5.71 x 2.76 in	**Part no.** * 24 VDC, Black	11622804050
		Part no. Spare part filter mats (5 pieces)	18611600034
		Part no. NEMA Type 3R/4/4X Rainhoods *	See page 27 for part no.

*Consult factory for additional options

Energy Savings Solution

DID YOU KNOW?

Installing a thermostat with a Filterfan® can save energy and extend the service life of the Filterfan®.

Pfannenberg's FLZ 530 Thermostats are designed to work directly with our Filterfans®. This provides efficient operation of the Filterfan® based on the temperature setting leading to greater reliability within the production process.

For additional thermostat models please visit the Heaters & Thermostat section found within this catalog.

FLZ Series Thermostats

Model number	Range	Part Number RAL 7035 (Light Grey)
FLZ 530	0-60 °C	17121000000
	32-140 °F	17121000010

PF SERIES

FILTERFANS 4.0 ™

PF 32000

- Airflow rate up to 65 CFM
- System of protection: NEMA type 12
- Cut-out dimensions: 177 x 177 mm

PF 32000 FILTERFANS®

Available voltages ± 10%	115 V, 230 V, 24 VDC	System of protection (UL Listed)	NEMA Type 12 - fluted filter
Design (housing and protection against accidental contact)	made of injection-molded thermoplastic, self-extinguishing, UL 94 VO	Filter mat quality class	G 4
Service life L_{10} (+ 40 °C)	40,000 h / 37,500 h / 62,500 h (DC)	Unimpeded airflow	65 CFM
Weight	1.9 lb / 1.3 lb (DC)	Airflow rate in combination (PF + PFA 30.000)	38 CFM
Color	RAL 7035 (Lt. Grey) RAL 9011 (Black)	Filtration efficiency	91%
Noise level (EN ISO 3741)	40 dB (A)	**Part no.** * 115 V, Lt. Grey	11632154055
Type of connection	terminal strip / cable, 2 core, length 310 mm	**Part no.** * 115 V, Black	11632154050
Bearing type	sleeve bearing / ball bearing (DC)	**Part no.** * 230 V, Lt. Grey	11632104055
Approvals	UL, cUL, CE, (on request: GOST)	**Part no.** * 230 V, Black	11632104050
Power consumption	20 W / 18 W / 5 W (DC)	**Part no.** * 24 VDC, Lt. Grey	11632804055
Width x height x depth	7.95 x 7.95 x 3.66 in	**Part no.** * 24 VDC, Black	11632804050
		Part no. Spare part filter mats (5 pieces)	18611600035
		Part no. NEMA Type 3R/4/4X Rainhoods *	See page 27 for part no.

PF 33000 SL

- Airflow rate up to 152 CFM
- System of protection: NEMA type 12
- Cut-out dimensions: 177 x 177 mm

PF 33000 SL SLIM LINE FILTERFANS®

Available voltages ± 10%	115 V, 230 V, 24 VDC	System of protection (UL Listed)	NEMA Type 12 - fluted filter
Design (housing and protection against accidental contact)	made of injection-molded thermoplastic, self-extinguishing, UL 94 VO	Filter mat quality class	G 4
Service life L_{10} (+ 40 °C)	40,000 h / 80,000 h (DC)	Unimpeded airflow	152 CFM
Weight	3.68 lb	Airflow rate in combination (PF + PFA 30.000)	115 CFM
Color	RAL 7035 (Lt. Grey) RAL 9011 (Black)	Filtration efficiency	91%
Noise level (EN ISO 3741)	42 dB (A)	**Part no.** * 115 V, Lt. Grey	11633156055
Type of connection	cables (DC) / Terminal (AC)	**Part no.** * 115 V, Black	11633156050
Bearing type	ball bearing (DC)	**Part no.** * 230 V, Lt. Grey	11633106055
Approvals	UL, CE, CSA	**Part no.** * 230 V, Black	11633106050
Power consumption	40 W / 39 W / 12 W (DC)	**Part no.** * 24 VDC, Lt. Grey	11633806055
Width x height x depth	7.95 x 7.95 x 3.70 in	**Part no.** * 24 VDC, Black	11633806050
		Part no. Spare part filter mats (5 pieces)	18611600035
		Part no. NEMA Type 3R/4/4X Rainhoods *	See page 27 for part no.

*Consult factory for additional options

DID YOU KNOW?

That if you need to install a Filterfan® in an environment that requires additional protection from the weather or a direct water spray, Pfannenberg offers protective hoods. These NEMA 3R/4 Rain Hoods offer protection from falling water, snow/ice and washdown spray with minimal airflow reduction. The hoods are available in light grey or dark grey to match your enclosures and a 4X stainless steel option. **Note: This technique will not prevent hazardous gases or humidity from entering the cabinet.**

Turn to page 27 for an overview of our new and improved rainhoods.

For additional technical data, drawings and templates. www.pfannenbergusa.com

Pfannenberg
ELECTRO-TECHNOLOGY FOR INDUSTRY

PF 42500

- Airflow rate up to 94 CFM
- System of protection: NEMA type 12
- Cut-out dimensions: 223 x 223 mm

PF 42500 FILTERFANS®

Available voltages ± 10%	115 V, 230 V, 24 VDC	System of protection (UL Listed)	NEMA Type 12 - fluted filter
Design (housing and protection against accidental contact)	made of injection-molded thermoplastic, self-extinguishing, UL 94 VO	Filter mat quality class	G 4
		Unimpeded airflow	94 CFM
Service life L_{10} (+ 40 °C)	42,500 h / 40,000 h / 70,000 h (DC)	Airflow rate in combination (PF + PFA 40.000)	74 CFM
Weight	3 lb / 2 lb (DC)	Filtration efficiency	91%
Color	RAL 7035 (Lt. Grey) RAL 9011 (Black)	**Part no.** * 115 V, Lt. Grey	11642154055
Noise level (EN ISO 3741)	43 dB (A)	**Part no.** * 115 V, Black	11642154050
Type of connection	spring-type terminal	**Part no.** * 230 V, Lt. Grey	11642104055
Bearing type	ball bearing	**Part no.** * 230 V, Black	11642104050
Approvals	UL, cUL, CE, (on request: GOST)	**Part no.** * 24 VDC, Lt. Grey	11642804055
Power consumption	17 W / 4.7 W (DC)	**Part no.** * 24 VDC, Black	11642804050
Width x height x depth	9.92 x 9.92 x 4.05 in	**Part no.** Spare part filter mats (5 pieces)	18611600036
		Part no. NEMA Type 3R/4/4X Rainhoods *	See page 27 for part no.

PF 43000

- Airflow rate up to 155 CFM
- System of protection: NEMA type 12
- Cut-out dimensions: 223 x 223 mm

PF 43000 FILTERFANS®

Available voltages ± 10%	115 V, 230 V, 24 VDC	System of protection (UL Listed)	NEMA Type 12 - fluted filter
Design (housing and protection against accidental contact)	made of injection-molded thermoplastic, self-extinguishing, UL 94 VO	Filter mat quality class	G 4
		Unimpeded airflow	155 CFM
Service life L_{10} (+ 40 °C)	40,000 h / 80,000 h (DC)	Airflow rate in combination (PF + PFA 40.000)	122 CFM
Weight	3.68 lb / 3.33 lb (DC)	Filtration efficiency	91%
Color	RAL 7035 (Lt. Grey) RAL 9011 (Black)	**Part no.** * 115 V, Lt. Grey	11643154055
Noise level (EN ISO 3741)	46 dB (A) / 42 dB (A) (DC)	**Part no.** * 115 V, Black	11643154050
Type of connection	spring-type terminal	**Part no.** * 230 V, Lt. Grey	11643104055
Bearing type	ball bearing	**Part no.** * 230 V, Black	11643104050
Approvals	UL, cUL, CE, (on request: GOST)	**Part no.** * 24 VDC, Lt. Grey	11643804055
Power consumption	40 W / 39 W / 12 W (DC)	**Part no.** * 24 VDC, Black	11643804050
Width x height x depth	9.92 x 9.92 x 4.69 in	**Part no.** Spare part filter mats (5 pieces)	18611600036
		Part no. NEMA Type 3R/4/4X Rainhoods *	See page 27 for part no.

*Consult factory for additional options

DID YOU KNOW?

Untreated plastics exposed to continuous sunlight will experience UV degradation; becoming damaged, cracked and brittle. Pfannenberg's specially treated UV-Resistant Plastic Filterfans® and UV-Resistant Plastic Exhaust Filters are the best option for use in outdoor applications exposed to the sun.

Protect your investment, reduce maintenance costs and extend the life of the product.

Available in PF 22000 - PF 67000 series models. Just add "UV" to the model number when ordering.

PF SERIES

FILTERFANS 4.0 ™

PF 65000

- Airflow rate up to 297 CFM
- System of protection: NEMA type 12
- Cut-out dimensions: 292 x 292 mm

PF 65000 FILTERFANS®

Available voltages ± 10%	115 V, 230 V
Design (housing and protection against accidental contact)	made of injection-molded thermoplastic, self-extinguishing, UL 94 VO
Service life L_{10} (+ 40 °C)	40,000 h
Weight	7 lb
Color	RAL 7035 (Lt. Grey) RAL 9011 (Black)
Noise level (EN ISO 3741)	52 dB (A)
Type of connection	spring-type terminal
Bearing type	ball bearing
Approvals	UL, cUL, CE, (on request: GOST)
Power consumption	90 W / 80 W
Width x height x depth	12.6 x 12.6 x 6.18 in

System of protection (UL Listed)	NEMA Type 12 - fluted filter
Filter mat quality class	G 4
Unimpeded airflow	297 CFM
Airflow rate in combination (PF + PFA 60.000)	224 CFM
Filtration efficiency	91%
Part no. * 115 V, Lt. Grey	11665154055
Part no. * 115 V, Black	11665154050
Part no. * 230 V, Lt. Grey	11665104055
Part no. * 230 V, Black	11665104050
Part no. Spare part filter mats (5 pieces)	18611600037
Part no. NEMA Type 3R Rainhood *	See page 27 for part no.

PF 65000 SL

- Airflow rate up to 325 CFM
- System of protection: NEMA type 12
- Cut-out dimensions: 292 x 292 mm

PF 65000 SL SLIM LINE FILTERFANS®

Available voltages ± 10%	115 V, 230 V
Design (housing and protection against accidental contact)	made of injection-molded thermoplastic, self-extinguishing, UL 94 VO
Service life L_{10} (+ 40 °C)	40,000 h
Weight	7 lb
Color	RAL 7035 (Lt. Grey) RAL 9011 (Black)
Noise level (EN ISO 3741)	52 dB (A)
Type of connection	spring-type terminal
Bearing type	ball bearing
Approvals	UL, cUL, CE, (on request: GOST)
Power consumption	80 W
Width x height x depth	12.6 x 12.6 x 5.16 in

System of protection (UL Listed)	NEMA type 12 - fluted filter
Filter mat quality class	G 4
Unimpeded airflow	325 CFM
Airflow rate in combination (PF + PFA 60.000)	249 CFM
Filtration efficiency	91%
Part no. * 115 V, Lt. Grey	11675154055
Part no. * 115 V, Black	11675154050
Part no. * 230 V, Lt. Grey	11675104055
Part no. * 230 V, Black	11675104050
Part no. Spare part filter mats (5 pieces)	18611600037
Part no. NEMA Type 3R/4/4X Rainhoods *	See page 27 for part no.

*Consult factory for additional options

DID YOU KNOW?

Installing a standard intake Filterfan® lower than the exhaust filter is the most efficient method for removing heat from an enclosure. There are times when the placement of internal electronics prevents this type of installation. You can flip the fan in the field or you can order reverse flow Filterfans® that exhausts air from the upper portion of the enclosure. This process creates a partial vacuum allowing air to be drawn in through a PFA Exhaust Filter maintaining the same system airflow. Reverse Filterfans® can also be used in series with intake Filterfans® to increase airflow through the system.

Reverse flow Filterfans® are available for all models. Just add "A" to the model number when ordering. Consult factory for 11 digit part number.

For additional technical data, drawings and templates. www.pfannenbergusa.com

PF SERIES

FILTERFANS 4.0 ™

Pfannenberg
ELECTRO-TECHNOLOGY FOR INDUSTRY

PF 66000

- Airflow rate up to 462 CFM
- System of protection: NEMA type 12
- Cut-out dimensions: 292 x 292 mm

PF 66000 FILTERFANS®

Available voltages ± 10%	115 V, 230 V, 400 / 460 V
Design (housing and protection against accidental contact)	made of injection-molded thermoplastic, self-extinguishing, UL 94 VO
Service life L_{10} (+ 40 °C)	40,000 h
Weight	7 lb
Color	RAL 7035 (Lt. Grey) RAL 9011 (Black)
Noise level (EN ISO 3741)	64 dB (A)
Type of connection	spring-type terminal
Bearing type	ball bearing
Approvals	UL, cUL, CE, (on request: GOST)
Power consumption	160 W / 150 W / 155 W
Width x height x depth	12.6 x 12.6 x 6.18 in

System of protection (UL Listed)	NEMA type 12 - fluted filter
Filter mat quality class	G 4
Unimpeded airflow	462 CFM
Airflow rate in combination (PF + PFA 60.000)	295 CFM
Filtration efficiency	91%
Part no. * 115 V, Lt. Grey	11666154055
Part no. * 115 V, Black	11666154050
Part no. * 230 V, Lt. Grey	11666104055
Part no. * 230 V, Black	11666104050
Part no. * 400/460 V, Lt. Grey	11666024055
Part no. * 400/460 V, Black	11666024050
Part no. Spare part filter mats (5 pieces)	18611600037
Part no. NEMA Type 3R/4/4X Rainhoods *	See page 27 for part no.

PF 67000

- Airflow rate up to 560 CFM
- System of protection: NEMA type 12
- Cut-out dimensions: 292 x 292 mm

PF 67000 FILTERFANS®

Available voltages ± 10%	115 V, 230 V, 400 / 460 V
Design (housing and protection against accidental contact)	made of injection-molded thermoplastic, self-extinguishing, UL 94 VO
Service life L_{10} (+ 40 °C)	40,000 h
Weight	8.16 lb
Color	RAL 7035 (Lt. Grey) RAL 9011 (Black)
Noise level (EN ISO 3741)	66 / 69 dB (A)
Type of connection	spring-type terminal
Bearing type	ball bearing
Approvals	UL, cUL, CE, (on request: GOST)
Power consumption	195 W / 200 W / 170 W
Width x height x depth	12.6 x 12.6 x 6.18 in

System of protection (UL Listed)	NEMA type 12 - fluted filter
Filter mat quality class	G 4
Unimpeded airflow	560 CFM
Airflow rate in combination (PF + PFA 60.000)	368 CFM
Filtration efficiency	91%
Part no. * 115 V, Lt. Grey	11667154055
Part no. * 115 V, Black	11667154050
Part no. * 230 V, Lt. Grey	11667104055
Part no. * 230 V, Black	11667104050
Part no. * 400/460 V, Lt. Grey	11667024055
Part no. * 400/460 V, Black	11667024050
Part no. Spare part filter mats (5 pieces)	18611600037
Part no. NEMA Type 3R Rainhood *	See page 27 for part no.

PF 67000 SL

- Airflow rate up to 427 CFM
- System of protection: NEMA type 12
- Cut-out dimensions: 292 x 292 mm

PF 67000 SL SLIM LINE FILTERFANS®

Available voltages ± 10%	115 V, 230 V, 400 / 460 V
Design (housing and protection against accidental contact)	made of injection-molded thermoplastic, self-extinguishing, UL 94 VO
Service life L_{10} (+ 40 °C)	40,000 h
Weight	8.82 lb / 8.93 lb / 8.49 lb
Color	RAL 7035 (Lt. Grey) RAL 9011 (Black)
Noise level (EN ISO 3741)	69 dB (A)
Type of connection	spring-type terminal
Bearing type	ball bearing
Approvals	UL, cUL, CE, (on request: GOST)
Power consumption	165 W / 180 W / 165 W
Width x height x depth	12.6 x 12.6 x 5.27 in

System of protection (UL Listed)	NEMA type 12 - fluted filter
Filter mat quality class	G 4
Unimpeded airflow	427 CFM
Airflow rate in combination (PF + PFA 60.000)	342 CFM
Filtration efficiency	91%
Part no. * 115 V, Lt. Grey	11677154055
Part no. * 115 V, Black	11677154050
Part no. * 230 V, Lt. Grey	11677104055
Part no. * 230 V, Black	11677104050
Part no. * 400/460 V, Lt. Grey	16677124055
Part no. * 400/460 V, Black	16677124050
Part no. Spare part filter mats (5 pieces)	18611600037
Part no. NEMA Type 3R/4/4X Rainhoods *	See page 27 for part no.

*Consult factory for additional options

DID YOU KNOW?

Pfannenberg's Filterfans 4.0™ were developed and optimized after more than 1,000 tests in our modern test laboratory. Our engineers use specially designed climate chambers to test and measure the capabilities of our thermal management products.

PTF SERIES

ROOF MOUNT FILTERFANS®

PTF 60500

- Airflow rate up to 206 CFM
- Tool-less mounting, patented quick fastening system
- System of protection: NEMA type 12
- Cut-out dimensions: 292 x 292 mm

PTF 60500 ROOF MOUNT FILTERFANS®

Available voltages ± 10%	115 V, 230 V
Design (housing and protection against accidental contact)	sheet steel, cover powder-coated; snap-in housing made of injection-molded thermoplastic (ABS-FR) self-extinguishing, UL 94 VO
Service life L_{10} (+ 40 °C)	approx. 50,000 h
Weight	5.5 lb
Color	RAL 7035 (Lt. Grey)
Noise level (EN ISO 3741)	67 dB (A)
Type of connection	terminal strip
Bearing type	ball bearing
Approvals	UL, cUL, CE, (on request: GOST)
Power consumption	4 x 24 W / 4 x 29 W

Width x Depth x Height	16.93 x 16.93 x 4.92	
Filter mat quality class	G 3	
Unimpeded airflow	206 CFM	
Airflow rate in combination (PF + PFA 60.000)	142 CFM	
Filtration efficiency	81%	0%
Part no. * (115 V)	11685151055	
Part no. Spare part filter mats (20 pieces)	18611600038	

PTF 60700

- Airflow rate up to 324 CFM
- Tool-less mounting, patented quick fastening system
- System of protection: NEMA type 12
- Cut-out dimensions: 292 x 292 mm

PTF 60700 ROOF MOUNT FILTERFANS®

Available voltages ± 10%	115 V, 230 V, 400 / 460 V
Design (housing and protection against accidental contact)	sheet steel, cover powder-coated; snap-in housing made of injection-molded thermoplastic (ABS-FR) self-extinguishing, UL 94 VO
Service life L_{10} (+ 40 °C)	approx. 40,000 h
Weight	5.8 lb
Color	RAL 7035 (Lt. Grey)
Noise level (EN ISO 3741)	69 dB (A)
Type of connection	terminal strip
Bearing type	ball bearing
Approvals	UL, cUL, CE, (on request: GOST)
Power consumption	90 W / 80 W

Width x Depth x Height	18.5 x 18.5 x 5.51 in
Filter mat quality class	G 3
Unimpeded airflow	324 CFM
Airflow rate in combination (PF + PFA 60.000)	218 CFM
Filtration efficiency	81%
Part no. * (115 V)	11687152055
Part no. Spare part filter mats (20 pieces)	18611600039

PTF 61000

- Airflow rate up to 441 CFM
- Tool-less mounting, patented quick fastening system
- System of protection: NEMA type 12
- Cut-out dimensions: 292 x 292 mm

PTF 61000 ROOF MOUNT FILTERFANS®

Available voltages ± 10%	115 V, 230 V
Design (housing and protection against accidental contact)	sheet steel, cover powder-coated; snap-in housing made of injection-molded thermoplastic (ABS-FR) self-extinguishing, UL 94 VO
Service life L_{10} (+ 40 °C)	approx. 40,000 h
Weight	6 lb
Color	RAL 7035 (Lt. Grey)
Noise level (EN ISO 3741)	77 dB (A)
Type of connection	terminal strip
Bearing type	ball bearing
Approvals	UL, cUL, CE, (on request: GOST)
Power consumption	160 W / 150 W

Width x Depth x Height	18.5 x 18.5 x 5.51 in
Filter mat quality class	G 3
Unimpeded airflow	441 CFM
Airflow rate in combination (PF + PFA 60.000)	294 CFM
Filtration efficiency	81%
Part no. * (115 V)	11681152055
Part no. Spare part filter mats (20 pieces)	18611600039

PTFA 60000

- Tool-less mounting, patented quick fastening system
- System of protection: NEMA type 12
- W x D x H: 16.93 x 16.93 x 4.92 in
- Cut-out dimensions: 292 x 292 mm

PTFA 60000 TOP MOUNT EXHAUST FILTERS

Design (housing and protection against accidental contact)	sheet steel, cover powder-coated; snap-in housing made of injection-molded thermoplastic (ABS-FR) self-extinguishing, UL 94 VO
Color	RAL 7035 (Lt. Grey)
Approvals	UL, cUL, CE, (on request: GOST)
Filter mat quality class	G 3
Part no. *	11786001055
Part no. Spare filter mats (20 pieces)	18611600038

*Consult factory for additional options

PFA SERIES

EXHAUST FILTERS

Pfannenberg
ELECTRO-TECHNOLOGY FOR INDUSTRY

PFA 10000

- Snap fastener without screws
- Simple filter mat exchange
- With integrated foam seal to enclosure
- W x H x D: 4.29 x 4.29 x .90 in
- Cut-out dimensions: 92 x 92 mm
- Color: RAL 7035 (Lt. Grey)
  RAL 9011 (Black)

PFA 10000 EXHAUST FILTERS	
Design (housing and protection against accidental contact)	made of injection-molded thermoplastic, self-extinguishing, UL 94 VO
Approvals	UL, cUL, CE, (on request: GOST)
System of protection (EN 60529 / UL Listed)	NEMA type 12 - standard filter
Filter mat quality class	G 3
Part no. *	11710001055 (Lt. Grey)
Part no. *	11710001050 (Black)
Part no. Spare filter mats (5 pieces)	18611600029
Part no. NEMA Type 3R/4/4X Rainhoods *	See page 27 for part no.

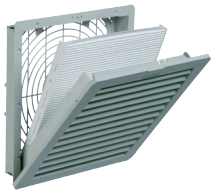
PFA 20000

- Snap fastener without screws
- Simple filter mat exchange
- With integrated foam seal to enclosure
- W x H x D: 5.71 x 5.71 x 1.22 in
- Cut-out dimensions: 125 x 125 mm
- Color: RAL 7035 (Lt. Grey)
  RAL 9011 (Black)

PFA 20000 EXHAUST FILTERS	
Design (housing and protection against accidental contact)	made of injection-molded thermoplastic, self-extinguishing, UL 94 VO
Approvals	UL, cUL, CE, (on request: GOST)
System of protection (EN 60529 / UL Listed)	NEMA type 12 - fluted filter
Filter mat quality class	G 4
Part no. *	11720004055 (Lt. Grey)
Part no. *	11720004050 (Black)
Part no. Spare filter mats (5 pieces)	18611600034
Part no. NEMA Type 3R/4/4X Rainhoods *	See page 27 for part no.

PFA 30000

- Snap fastener without screws
- Simple filter mat exchange
- With integrated foam seal to enclosure
- W x H x D: 7.95 x 7.95 x 1.57 in
- Cut-out dimensions: 177 x 177 mm
- Color: RAL 7035 (Lt. Grey)
  RAL 9011 (Black)



PFA 30000 EXHAUST FILTERS	
Design (housing and protection against accidental contact)	made of injection-molded thermoplastic, self-extinguishing, UL 94 VO
Approvals	UL, cUL, CE, (on request: GOST)
System of protection (EN 60529 / UL 50)	NEMA type 12 - fluted filter
Filter mat quality class	G 4
Part no. *	11730004055 (Lt. Grey)
Part no. *	11730004050 (Black)
Part no. Spare filter mats (5 pieces)	18611600035
Part no. NEMA Type 3R/4/4X Rainhoods *	See page 27 for part no.

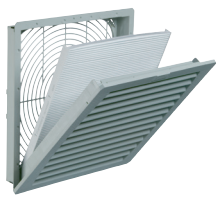
PFA 40000

- Snap fastener without screws
- Simple filter mat exchange
- With integrated foam seal to enclosure
- W x H x D: 9.92 x 9.92 x 1.74 in
- Cut-out dimensions: 223 x 223 mm
- Color: RAL 7035 (Lt. Grey)
  RAL 9011 (Black)

PFA 40000 EXHAUST FILTERS	
Design (housing and protection against accidental contact)	made of injection-molded thermoplastic, self-extinguishing, UL 94 VO
Approvals	UL, cUL, CE, (on request: GOST)
System of protection (EN 60529 / UL Listed)	NEMA type 12 - fluted filter
Filter mat quality class	G 4
Part no. *	11740004055 (Lt. Grey)
Part no. *	11740004050 (Black)
Part no. Spare filter mats (5 pieces)	18611600036
Part no. NEMA Type 3R/4/4X Rainhoods *	See page 27 for part no.

PFA 60000

- Snap fastener without screws
- Simple filter mat exchange
- With integrated foam seal to enclosure
- W x H x D: 12.6 x 12.6 x 1.8 in
- Cut-out dimensions: 292 x 292 mm
- Color: RAL 7035 (Lt. Grey)
  RAL 9011 (Black)



PFA 60000 EXHAUST FILTERS	
Design (housing and protection against accidental contact)	made of injection-molded thermoplastic, self-extinguishing, UL 94 VO
Approvals	UL, cUL, CE, (on request: GOST)
System of protection (EN 60529 / UL Listed)	NEMA type 12 - fluted filter
Filter mat quality class	G 4
Part no. *	11760004055 (Lt. Grey)
Part no. *	11760004050 (Black)
Part no. Spare filter mats (5 pieces)	18611600037
Part no. NEMA Type 3R/4/4X Rainhoods *	See page 27 for part no.

*Consult factory for additional options

DATAWIND FILTERFANS®

Externally Mounted Fans

Introducing our newest product the Datawind Filterfan®. This externally mounted Filterfan was designed for the new IT space, the manufacturing floor. As IT moves away from the clean rooms and closer to the manufacturing equipment, cooling requirements and equipment need to change. This new Datawind Filterfan® delivers the same advantages as our Filterfans 4.0, protecting your IT equipment in much dirtier manufacturing environments without sacrificing critical rack space.

DATAWIND FILTERFAN®

Designed to protect IT equipment in dirty manufacturing environments without sacrificing critical rack space.

Zero Protrusion Into The Enclosure
- Externally mounted, allowing for full use of all racks within the bays.

Maintenance Indication LED Light
- LED indicator warns when the temperature exceeds the desired temperature inside the cabinet.
- Indication of fan malfunction or clogged filter.

IEC Power Connector 6ft Cable (Located on center of fan to allow door to hinge in both directions)
- Fan side - IEC C13 plug with lock mechanism.
- Power side - NEMA 5-15P (115v) & IEC C14 (230v).

30° Sloped Top
- Designed to avoid dust collection and improve safety.

Cable to Adjustable Thermostat
- 13ft cable attached to an adjustable thermostat with DIN mounted bracket allowing fan to toggle on/off depending on cooling need. This feature extends both fan and filter lives.

Fits Existing Filterfan® Cutout
- Only need to drill mounting holes with power tools. Pre-existing 2.5" hole cut to allow pass through wiring.

Filterfan® 4.0 Benefits
- Design based on the Filterfan 4.0™ line to provide the same airflow as standard Filterfans® using a fluted filter mat with a 3x longer service life.
- The Datawind Filterfan® is also designed to be used with our existing PFA exhaust filters.

c UL us LISTED

CE

Datawind Filterfan

Part Number	Unimpeded CFM	Description	Replacement Filter Mat	Physical Dimensions W x H x D (inches)
18182000039	38	Datawind PF22000 115V RAL 9003	18611600034	6.8 x 9.4 x 2.8
18182000040	38	Datawind PF22000 115V RAL 9004	18611600034	6.8 x 9.4 x 2.8
18182000041	38	Datawind PF22000 230V RAL 9003	18611600034	6.8 x 9.4 x 2.8
18182000042	38	Datawind PF22000 230V RAL 9004	18611600034	6.8 x 9.4 x 2.8
18182000043	152	Datawind PF33000 SL 115V RAL 9003	18611600035	9.3 x 11.9 x 3.3
18182000044	152	Datawind PF33000 SL 115V RAL 9004	18611600035	9.3 x 11.9 x 3.3
18182000045	152	Datawind PF33000 SL 230V RAL 9003	18611600035	9.3 x 11.9 x 3.3
18182000046	152	Datawind PF33000 SL 230V RAL 9004	18611600035	9.3 x 11.9 x 3.3
18182000047	560	Datawind PF67000 115V RAL 9003	18611600037	14.9 x 17.5 x 5.5
18182000048	560	Datawind PF67000 115V RAL 9004	18611600037	14.9 x 17.5 x 5.5
18182000049	560	Datawind PF67000 230V RAL 9003	18611600037	14.9 x 17.5 x 5.5
18182000050	560	Datawind PF67000 230V RAL 9004	18611600037	14.9 x 17.5 x 5.5

For additional technical data, drawings and templates. www.pfannenbergusa.com

3R FILTERFANS®

Outdoor Series / NEMA 3R

Pfannenberg
ELECTRO-TECHNOLOGY FOR INDUSTRY

Outdoor Weather Ready
Protection against ingress of falling dirt, and harmful effects on sensitive components against rain, sleet, snow and even external ice formation. (NEMA 3R rating)

Optimized Air Flow
Louvers design is optimized to provide maximal airflow while providing supreme ingress protection; combined with best in class fans produces improved air flow to prevent hotspot

Less Frequent Maintenance
The fluted filter-mat provides 3x longer service life, holding more dust before impeding airflow extending the mean time between maintenance (MTBM) for outdoor enclosure; especially, critical for those locate in remote area.

Low Initial Investment
Traditional outdoor solution requires installation of a metal hood (rainhood) over the filter fan. The Outdoor Rated Filterfan® (NEMA 3R) eliminates the component and labor cost, and the patented tool-free installation reduces up front investment.

Prolong Life
UV resistance plastic to prevent premature degradation from direct sunlight

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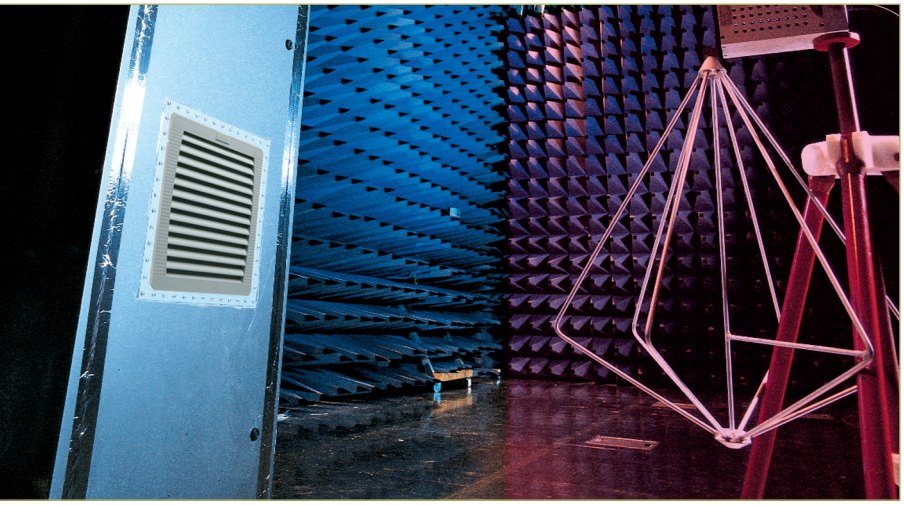
PF Series Filterfans® 4.0 - Outdoor Rated (NEMA 3R)

Type	Voltage	Air Flow Rate		Physical Dimensions W x H x D (inches)	Cutout Dimension W x H inches (mm)	Part No.	
		CFM² (Unimpeded - Filterfan assembly uninstalled)	CFM³ (Installed with one FilterFan and one Exhaust Filter)			Black (RAL 9011)	Light Grey (RAL 7035)
PF 22000 R	115 VAC	38 cfm	28 cfm	5.71 x 5.71 x 2.76	4.92 x 4.92 (125 x 125)	11622153110	11622153115
PF 22000 R	230 VAC					11622103110	11622103115
PF 22000 R	24 VDC					11622803110	11622803115
PF 32000 R	115 VAC	65 cfm	38 cfm	7.95 x 7.95 x 3.66	6.97 x 6.97 (177 x 177)	11632153110	11632153115
PF 32000 R	230 VAC					11632103110	11632103115
PF 32000 R	24 VDC					11632803110	11632803115
PF 42500 R	115 VAC	94 cfm	74 cfm	9.92 x 9.92 x 4.05	8.78 x 8.78 (223 x 223)	11642153110	11642153115
PF 42500 R	230 VAC					11642103110	11642103115
PF 42500 R	24 VDC					11642803110	11642803115
PF 43000 R	115 VAC	155 cfm	122 cfm	9.92 x 9.92 x 4.69	8.78 x 8.78 (223 x 223)	11643153110	11643153115
PF 43000 R	230 VAC					11643103110	11643103115
PF 43000 R	24 VDC					11643803110	11643803115
PF 65000 R	115 VAC	297 cfm	224 cfm	12.6 x 12.6 x 6.18	11.49 x 11.49 (292 x 292)	11665153110	11665153115
PF 65000 R	230 VAC					11665103110	11665103115
PF 66000 R	115 VAC	462 cfm	295 cfm	12.6 x 12.6 x 6.18	11.49 x 11.49 (292 x 292)	11666153110	11666153115
PF 66000 R	230 VAC					11666103110	11666103115
PF 66000 R	460 VAC					11666023110	11666023115
PF 67000 R	115 VAC	560 cfm	368 cfm	12.6 x 12.6 x 6.18	11.49 x 11.49 (292 x 292)	11667153110	11667153115
PF 67000 R	230 VAC					11667103110	11667103115
PF 67000 R	460 VAC					11667023110	11667023115
PFA Series Exhaust Filters - Outdoor Rated (NEMA 3R)							
PFA 20000 R	-	-	-	5.71 x 5.71 x 1.22	4.92 x 4.92 (125 x 125)	11720003110	11720003115
PFA 30000 R	-	-	-	7.95 x 7.95 x 1.57	6.97 x 6.97 (177 x 177)	11730003110	11730003115
PFA 40000 R	-	-	-	9.92 x 9.92 x 1.74	8.78 x 8.78 (223 x 223)	11740003110	11740003115
PFA 60000 R	-	-	-	12.6 x 12.6 x 1.8	11.49 x 11.49 (292 x 292)	11760003110	11760003115

PF / PFA EMC SERIES

EMC FILTERFANS 4.0™ / EXHAUST FILTERS

Protect your sensitive electronics from electromagnetic interference when cooling with Filterfans®. The use of a Filterfan® for thermal management requires an opening to be cut into the cabinet. These openings can allow electromagnetic radiation to pass in or out unhindered. **Pfannenberg's EMC Filterfans® offer the widest range of protection against electromagnetic interference**. We offer several combinations of EMC Filterfans® and exhaust filters for air flow rates from 17 to 560 CFM2. To better protect the environment, our EMC Filterfans® and exhaust filters do not use metalized plastics, because these are difficult to recycle.



EMC – Electromagnetic Compatibility

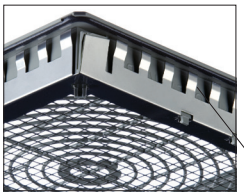
In standards, electromagnetic compatibility, or 'EMC' for short, is defined as the ability of a component, device or system to function satisfactorily under the influence of electromagnetic fields in its surroundings, without influencing its surroundings, to which other electrical equipment also belongs, in an impermissible way. We guarantee that our EMC shielded Filterfans® provide protection against electromagnetic interference by ensuring continuity between the shielding part of the fan and the metal structure of the cabinet based on the attenuation characteristics below:

Attenuation at 30 MHz approx. 71 dB

Attenuation at 400 MHz approx. 57 dB

Measured in accordance with EN 50 147-1 (1996): absorber rooms, part 1, measurement of screening attenuation.

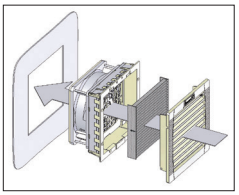
Type	Part Number	Replacement Filter Mat	Air Flow Rate CFM2 (Type 12 / IP 54)	Air Flow Rate CFM2 (Type 12 / IP 55)	Rated voltage	Cut-out dimensions (HxW)³ inches (mm)	Approvals			
							UL	cUL	GOST	CE
PF Series EMC Filterfans 4.0™										
PF 11000 EMC	11811151055 115 V, LT. Grey	18611600029	17	-	115V, 230V, 24 VDC	3.66 x 3.66 (93 x 93)	●	●	●	●
PF 22000 EMC	11822153055 115 V, LT. Grey	18611600034	-	38		4.96 x 4.96 (126 x 126)	●	●	●	●
PF 32000 EMC	11832153055 115 V, LT. Grey	18611600035	-	65		7.01 x 7.01 (178 x 178)	●	●	●	●
PF 42500 EMC	11842153055 115 V, LT. Grey	18611600036	-	94		8.82 x 8.82 (224 x 224)	●	●	●	●
PF 43000 EMC	11843153055 115 V, LT. Grey	18611600036	-	155		8.82 x 8.82 (224 x 224)	●	●	●	●
PF 65000 EMC	11865153055 115 V, LT. Grey	18611600037	-	297	115V, 230V	11.50 x 11.50 (292 x 292)	●	●	●	●
PF 66000 EMC	11866153055 115 V, LT. Grey	18611600037	-	462		11.50 x 11.50 (292 x 292)	●	●	●	●
PF 67000 EMC	11867153055 115 V, LT. Grey	18611600037	-	560	115V, 230V, 400/460 V	11.50 x 11.50 (292 x 292)	●	●	●	●
PFA Series EMC Exhaust Filters										
PFA 10000 EMC	11910001055 (Lt. Grey)	18611600029	N/A	N/A	N/A	3.66 x 3.66 (93 x 93)	●	●	●	●
PFA 20000 EMC	11920003055 (Lt. Grey)	18611600034				4.96 x 4.96 (126 x 126)	●	●	●	●
PFA 30000 EMC	11930003055 (Lt. Grey)	18611600035				7.01 x 7.01 (178 x 178)	●	●	●	●
PFA 40000 EMC	11940003055 (Lt. Grey)	18611600036				8.82 x 8.82 (224 x 224)	●	●	●	●
PFA 60000 EMC	11960003055 (Lt. Grey)	18611600037				11.50 x 11.50 (292 x 292)	●	●	●	●



Superior metal shielding

Unequaled worldwide: contact surfaces without beryllium-copper seal!

Contact springs



No elaborate reworking of the cut-out

- No adhering of copper tape or similar aids
- No time-consuming scratching off of coatings in order to ensure a good contact
- Contact is made via the cut edge of the cut-out for the Filterfans® or exhaust filter

FILTERFAN® RAINHOODS

NEMA 3R/4/4X/IPx6 WASHDOWN RAINHOODS

Pfannenberg
ELECTRO-TECHNOLOGY FOR INDUSTRY

SANITARY RAINHOOD

Pfannenberg offers a specialty 4X stainless steel rainhood to meet the FDA compatible requirements found in Food & Beverage Manufacturing Facilities.

Easy Installation
The mounting bracket can easily be installed to the enclosure around the existing cut-out.

Easy Maintenance
Easily remove the rain hood without tools for maintenance and filter mat replacement. (Optional tamper resistant fasteners available to eliminate unauthorized access)

Rugged Steel Construction
Powder coated or stainless steel cover designed for manufacturing environments. Easily painted to match enclosure or machine.

FDA Compatible White Gasket Design
Our white gasket design is ideal for Rainhoods that are used on enclosures in Food & Beverage applications. This gasket allows for easy detection of any contamination and is free of potentially harmful color additives.

Maximized Airflow & Superior Overspray Protection
Direct spray barrier allows for superior protection from overspray entering the cabinet, **while only reducing airflow <7%**.

NEMA Type 3R/4/4X / IPx6 Design:
This mounting system was designed to ensure a proper NEMA Type rating and protection when used with Pfannenberg Filterfans® and exhaust filters.

Compatible with Existing Fan Cutouts
Rainhoods come in different sizes and are designed to be compatible with existing Pfannenberg Filterfans® and Exhaust Filters.

Robust Sealing Against Enclosure
A primary design element found within our rainhoods is the robust sealing of our gasket. Our gasket features multiple seal dams with a high compression ratio and dense closed cell material. This gasket is found in both our regular and sanitary designs.

Easy Washdown and Disinfection
With a smooth, clean and seamless design, Pfannenberg Rainhoods allow for easy washdown and disinfection. Direct spray barrier design allows for superior protection from overspray entering the cabinet while minimizing airflow loss.

NEMA Type 3R, 4, 4X Rated / IPx6 Rating

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INDUSTRY'S FIRST UL LISTED RAINHOOD SOLUTION

= c UL us LISTED

ENVIROMENTALLY RATED ENCLOSURE ACCESSORY SOLUTION
Based on FTTA.E489500

This technique will not prevent hazardous gases or humidity from entering the cabinet.

NEMA Type 3R/4/4X / IPx6 Series Rainhoods for Filterfans®

Model Numbers	Description	Compatibility	Part Number
PF-RH-20000-WD-LG	Rainhood, Lt Grey RAL 7035, NEMA Type 3R/4	PF 22000 Filterfans® PFA 20000 Exhaust Filters	18182000010
PF-RH-20000-WD-GY	Rainhood, Grey ANSI 61, NEMA Type 3R/4		18182000009
PF-RH-20000-WD-SS	Rainhood, 304 SS NEMA Type 4/4X		18182000011
PF-SH-20000-WD-SS	Sanitary Hood SS NEMA Type 4/4X (White FDA Gasket)		18182000026
PF-RH-30000-WD-LG	Rainhood, Lt Grey RAL 7035, NEMA Type 3R/4	PF 3X000 Filterfans® PFA 30000 Exhaust Filters	18182000013
PF-RH-30000-WD-GY	Rainhood, Grey ANSI 61, NEMA Type 3R/4		18182000012
PF-RH-30000-WD-SS	Rainhood, 304 SS NEMA Type 4/4X		18182000014
PF-SH-30000-WD-SS	Sanitary Hood SS NEMA Type 4/4X (White FDA Gasket)		18182000027
PF-RH-40000-WD-LG	Rainhood, Lt Grey RAL 7035, NEMA Type 3R/4	PF 4XX00 Filterfans® PFA 40000 Exhaust Filters	18182000016
PF-RH-40000-WD-GY	Rainhood, Grey ANSI 61, NEMA Type 3R/4		181820000015
PF-RH-40000-WD-SS	Rainhood, 304 SS NEMA Type 4/4X		18182000017
PF-SH-40000-WD-SS	Sanitary Hood SS NEMA Type 4/4X (White FDA Gasket)		18182000028
PF-RH-60000-WD-LG	Rainhood, Lt Grey RAL 7035, NEMA Type 3R/4	PF 6XX00 Filterfans® PFA 60000 Exhaust Filters	18182000019
PF-RH-60000-WD-GY	Rainhood, Grey ANSI 61, NEMA Type 3R/4		18182000018
PF-RH-60000-WD-SS	Rainhood, 304 SS NEMA Type 4/4X		18182000020
PF-SH-60000-WD-SS	Sanitary Hood SS NEMA Type 4/4X (White FDA Gasket)		18182000029


Plannenberg

PKS 313X, 320X, 330X, 336X Series Air/Air Heat Exchangers

Efficient Cooling with Ambient Air

The PKS 3000 Series Air/Air Heat Exchangers use Pfannenberg's Kinetic System™ next generation cooling to exchange and move the heat from an electrical enclosure to the outside environment. This is a perfect solution when concerned with the open loop Filterfan® designs that don't prevent corrosive gas or humidity from entering the enclosure. Designed for indoor cooling, outdoor or remote applications that require a closed loop system to protect electronics.

The PKS 3000 Series features an energy efficient, minimal maintenance and reduced footprint design that is a proven solution in harsh environments.

The PKS Mini series Air/Air Heat Exchangers are ideal for the replacement of a Filterfan® solution when the ambient air is too contaminated to enter the cabinet. These units offer a closed loop design to isolate external air from inside of the enclosure without the need to change the filter.

PKS 30X2 | AIR/AIR HEAT EXCHANGERS

22 & 45 W/°C

The PKS Mini series Air/Air Heat Exchangers are ideal for the replacement of a Filterfan® solution when the ambient air is too contaminated to enter the cabinet. Available in 2 models; PKS 3042, PKS 3092

PFANNENBERG KINETIC SYSTEM™

Uses next generation cooling technology that out-performs conventional heat exchanger and/or heat pipe solutions.

Closed Loop Design
Designed to isolate the external ambient air from the internally conditioned air eliminating the risk of contaminants entering the cabinet.

Efficiency
High performance/cost ratios due to innovative use of advanced heat transfer and manufacturing technologies.

Space Saving Design
Thin profile with minimum intrusion into enclosure.

Easy Installation
Minimum number of penetrations by cover fasteners, mounting fasteners and external wires.

Rugged Design
Powder coated aluminum mounting plate with stainless steel covers.

Multiple Mounting Options
Aluminum mounting plate can be mounted on the top, side, front or back.

Multiple Electrical Configurations
115 VAC units arrive with 6 ft long 3-pronged plug. DC units arrive with bare lead wires. Other voltages available upon request.

Environment
Indoor or outdoor use.

Reduced Fan Maintenance
UL Listed 6.0" dual axial ball bearing fans for years of maintenance free operation (dry & wet locations).

NEMA Rating
Type 4 & 4X.

UL Listed & Recognized
The 115 VAC units are UL listed.

Warranty
One year warranty.

CE UL US LISTED

For additional technical data, drawings and templates. www.pfannenbergusa.com

PKS Mini 30X2 (22 & 45 Watts/°C) Heatsink Air/Air Heat Exchangers

Model Number	Part Number	Voltage 60 Hz (VAC)	Specific Cooling Capacity (W/°C)	Specific Cooling Capacity (W/°F)	Cooling Capacity @ ΔT = 20°C (BTU/hr)	Power Consumption (Watts)	Nominal Run Current (Amps)	Width (Inches)	Depth (Inches)	Height (Inches)	Weight (without packaging) (lbs)
PKS 3042	12480112009	115	22	12	1,400	82	0.72	12	7.89	12	17
PKS 3092	12480212009	115	45	25	3,000	163	1.44	12	7.89	22.75	35
IP Rating:	ONLY available as washdown (NEMA Type 4/4X) design										

Additional Data	PKS Mini 30X2
Ambient Temp. Range	-25°C to +55°C (-13°F to +131°F)
Control Range	N/A
Design	**Mounting Plate:** powder coated aluminum / **Cover:** 316 stainless steel

*115 VAC units are only 60 Hz rated.

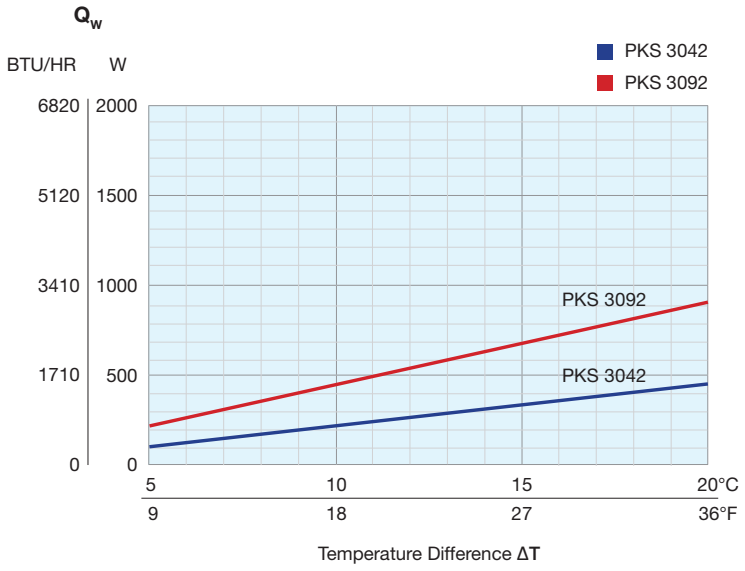
For additional technical data, drawings and templates.
www.pfannenbergusa.com

Subject to technical amendments and misprints.

Available Models:

PKS 3092 **PKS 3042**

Cooling Capacity Performance Curve



PKS 313X | AIR/AIR HEAT EXCHANGERS

65 W/°C

The PKS 313X Series Air/Air Heat Exchangers use **Pfannenberg's Kinetic System™** next generation cooling to exchange and move heat from an electrical enclosure to the outside environment. This is a perfect solution when concerned with the open loop designs that don't prevent corrosive gas, humidity and dust from entering the enclosure. Designed for indoor cooling, outdoor or remote applications that require a closed loop system to protect electronics. Available in 3 models; PKS 3131, PKS 3133, PKS 3134.

PFANNENBERG KINETIC SYSTEM™

Uses next generation cooling technology that out-performs conventional heat exchanger and/or heat pipe solutions.

Best CCPD™
Produces superior Cooling Capacity Per Density vs. conventional heat exchanger and/or heat pipe solutions.

Energy Efficient
Utilizes lower temperature ambient air to cool warmer internal air without an active component such as a compressor which consumes high amounts of energy.

Reduced Maintenance
With only two mechanical components (fans), potential failure point is reduced to ensure continuous uptime of your processes.

Flexible Mounting Options
Unit can be installed vertically or horizontally, allowing the cool air to be focused where it is needed most.

Closed Loop Design
Designed to isolate external ambient air from internal air eliminating the risk of contaminates entering the cabinet. Compared to Filterfans® with Rainhoods, the PKS seals against gaseous substances, humidity and airborne particulates such as dust, keeping it away from sensitive components within the electrical enclosure.

Easy Installation
Our compact lightweight design means that the unit can be installed by just one person.

Self Protected from Harsh Environments
Our unit is uniquely designed to protect itself in NEMA 3R, 4, and 4X environments. An example of this is the location of our control electronics within our dry, cool interior circuit.

Eliminates Hotspots
High CFM fan for good air flow within the enclosure, ideal for removing hot spots.

c UL us LISTED

PATENT PENDING

For additional technical data, drawings and templates. www.pfannenbergusa.com

PKS 313X (65 Watts/°C) Kinetic System Air/Air Heat Exchangers

Model Number	Part Number	Voltage 50/60 Hz (VAC)	Specific Cooling Capacity (W/°C)	Specific Cooling Capacity (W/°F)	Cooling Capacity @ △T = 20°C (BTU/hr)	Power Consumption (Watts)	Nominal Run Current (Amps)	Mounting Dimensions* (Inches) Width	Depth	Height	Weight (without packaging) (lbs)
PKS 3131 Indoor Rated (NEMA Type 12)	12480311005	115	65	36	4,400	75	0.86	12	11	35	44
	12480321005	230	65	36	4,400	75	0.42	12	11	35	44
	12480331005	400/460	65	36	4,400	75	0.21	12	11	35	47
PKS 3133 Outdoor Rated (NEMA Type 3R/4)	12480313005	115	65	36	4,400	75	0.86	12	11	35	50
	12480323005	230	65	36	4,400	75	0.42	12	11	35	50
	12480333005	400/460	65	36	4,400	75	0.21	12	11	35	53
PKS 3134 Washdown (NEMA Type 4/4x)	12480314008	115	65	36	4,400	75	0.86	12	11	35	50
	12480324008	230	65	6	4,400	75	0.42	12	11	35	50
	12480334008	400/460	65	36	4,400	75	0.21	12	11	35	53

Additional Data	PKS 313X
Ambient Temp. Range	Min: -25°C / -13°F . . . +55°C / +131°F
Control Range	20°C to 60°C (68°F to 140°F); Factory Setting 35°C (95°F)
Design	**Housing/Cover:** Indoor/Outdoor - powder coated RAL 7035 (light gray); Washdown - 304 Stainless Steel

*Louver and rainhood dimensions not included on outdoor and washdown units.

For additional technical data, drawings and templates visit www.pfannenbergusa.com

Subject to technical amendments and misprints.

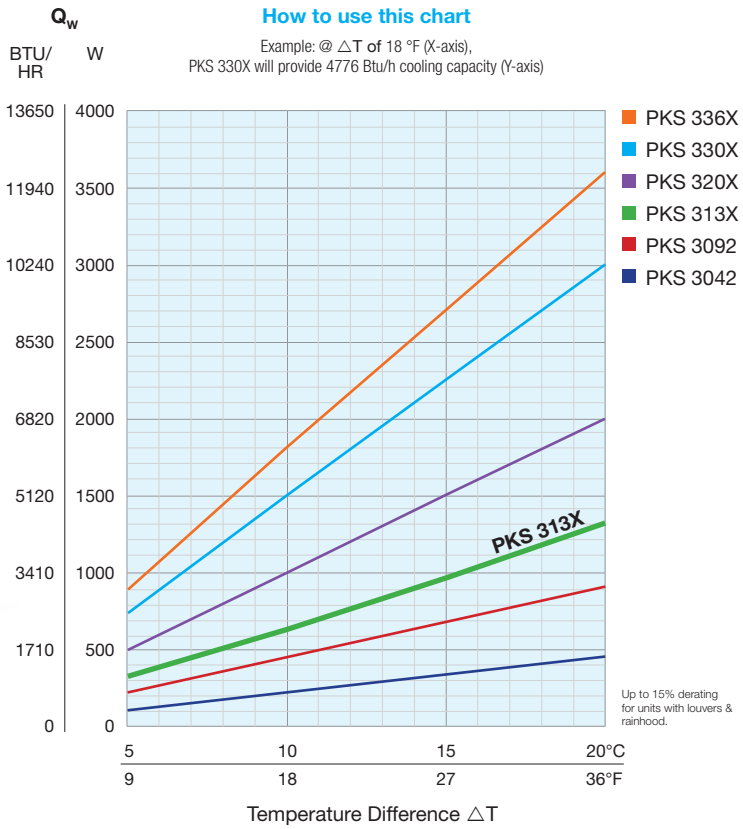
Available Models:

PKS 3131 Indoor Rated

PKS 3133 Outdoor Rated

PKS 3134 Washdown

Cooling Capacity Performance Curve



PKS 320X | AIR/AIR HEAT EXCHANGERS

100 W/°C

The PKS 320X Series Air/Air Heat Exchangers use **Pfannenberg's Kinetic System™** next generation cooling to exchange and move heat from an electrical enclosure to the outside environment. This is a perfect solution when concerned with the open loop designs that don't prevent corrosive gas, humidity and dust from entering the enclosure. Designed for indoor cooling, outdoor or remote applications that require a closed loop system to protect electronics. Available in 3 models; PKS 3201, PKS 3203, PKS 3204.

PFANNENBERG KINETIC SYSTEM™

Uses next generation cooling technology that out-performs conventional heat exchanger and/or heat pipe solutions.

Best CCPD™
Produces superior Cooling Capacity Per Density vs. conventional heat exchanger and/or heat pipe solutions.

Energy Efficient
Utilizes lower temperature ambient air to cool warmer internal air without an active component such as a compressor which consumes high amounts of energy.

Reduced Maintenance
With only two mechanical components (fans), potential failure point is reduced to ensure continuous uptime of your processes.

Flexible Mounting Options
Unit can be installed vertically or horizontally, allowing the cool air to be focused where it is needed most.

Closed Loop Design
Designed to isolate external ambient air from internal air eliminating the risk of contaminates entering the cabinet. Compared to Filterfans® with Rainhoods, the PKS seals against gaseous substances, humidity and airborne particulates such as dust, keeping it away from sensitive components within the electrical enclosure.

Easy Installation
Our compact lightweight design means that the unit can be installed by just one person.

Self Protected from Harsh Environments
Our unit is uniquely designed to protect itself in NEMA 3R, 4, and 4X environments. An example of this is the location of our control electronics within our dry, cool interior circuit.

Eliminates Hotspots
High CFM fan for good air flow within the enclosure, ideal for removing hot spots.

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PATENT PENDING

For additional technical data, drawings and templates. www.pfannenbergusa.com

PKS 320X (100 Watts/°C) Kinetic System Air/Air Heat Exchangers

Model Number	Part Number	Voltage 50/60 Hz (VAC)	Specific Cooling Capacity (W/°C)	Specific Cooling Capacity (W/°F)	Cooling Capacity @ △T = 20°C (BTU/hr)	Power Consumption (Watts)	Nominal Run Current (Amps)	Mounting Dimensions* (Inches) Width	Depth	Height	Weight (without packaging) (lbs)
PKS 3201 Indoor Rated (NEMA Type 12)	12480511005	115	100	56	6,800	75	0.86	12	11	35	44
	12480521005	230	100	56	6,800	75	0.42	12	11	35	44
	12480531005	400/460	100	56	6,800	75	0.21	12	11	35	47
PKS 3203 Outdoor Rated (NEMA Type 3R/4)	12480513005	115	100	56	6,800	75	0.86	12	11	35	50
	12480523005	230	100	56	6,800	75	0.42	12	11	35	50
	12480533005	400/460	100	56	6,800	75	0.21	12	11	35	53
PKS 3204 Washdown (NEMA Type 4/4x)	12480514008	115	100	56	6,800	75	0.86	12	11	35	50
	12480524008	230	100	56	6,800	75	0.42	12	11	35	50
	12480534008	400/460	100	56	6,800	75	0.21	12	11	35	53

Additional Data	PKS 320X
Ambient Temp. Range	Min: -25°C / -13°F . . . +55°C / +131°F
Control Range	20°C to 60°C (68°F to 140°F); Factory Setting 35°C (95°F)
Design	**Housing/Cover:** Indoor/Outdoor - powder coated RAL 7035 (light gray); Washdown - 304 Stainless Steel

*Louver and rainhood dimensions not included on outdoor and washdown units.

For additional technical data, drawings and templates visit www.pfannenbergusa.com

Subject to technical amendments and misprints.

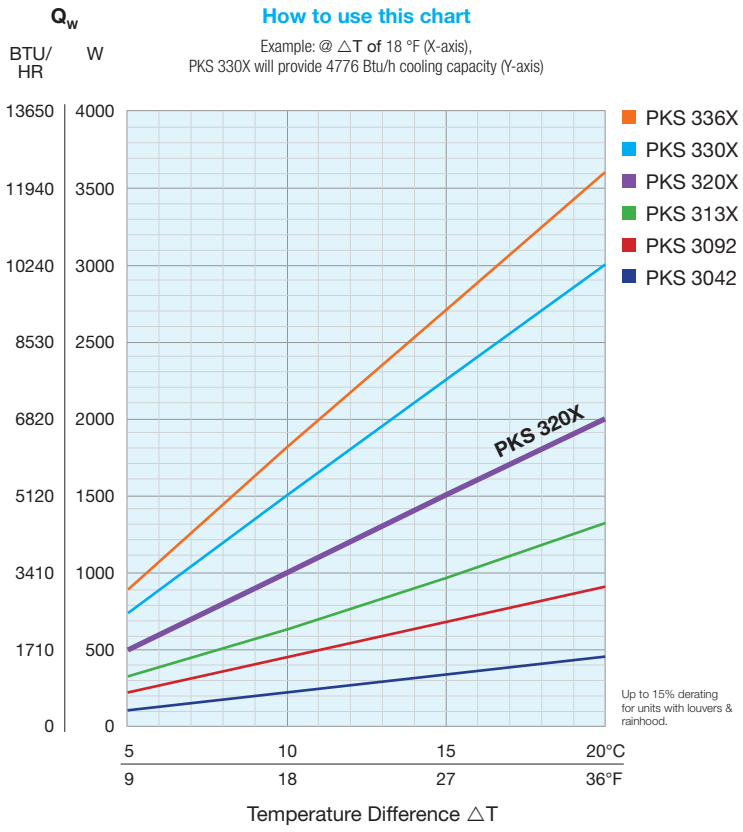
Available Models:

PKS 3201 Indoor Rated

PKS 3203 Outdoor Rated

PKS 3204 Washdown

Cooling Capacity Performance Curve



PKS 330X | AIR/AIR HEAT EXCHANGERS

150 W/°C

The PKS 330X Series Air/Air Heat Exchangers use **Pfannenberg's Kinetic System™** next generation cooling to exchange and move heat from an electrical enclosure to the outside environment. This is a perfect solution when concerned with the open loop designs that don't prevent corrosive gas, humidity and dust from entering the enclosure. Designed for indoor cooling, outdoor or remote applications that require a closed loop system to protect electronics. Available in 3 models; PKS 3301, PKS 3303, PKS 3304.

PFANNENBERG **KINETIC SYSTEM™**

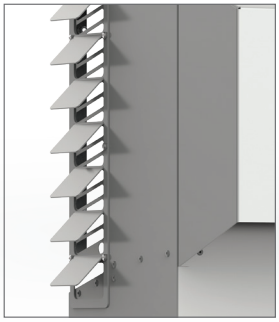
Uses next generation cooling technology that out-performs conventional heat exchanger and/or heat pipe solutions.

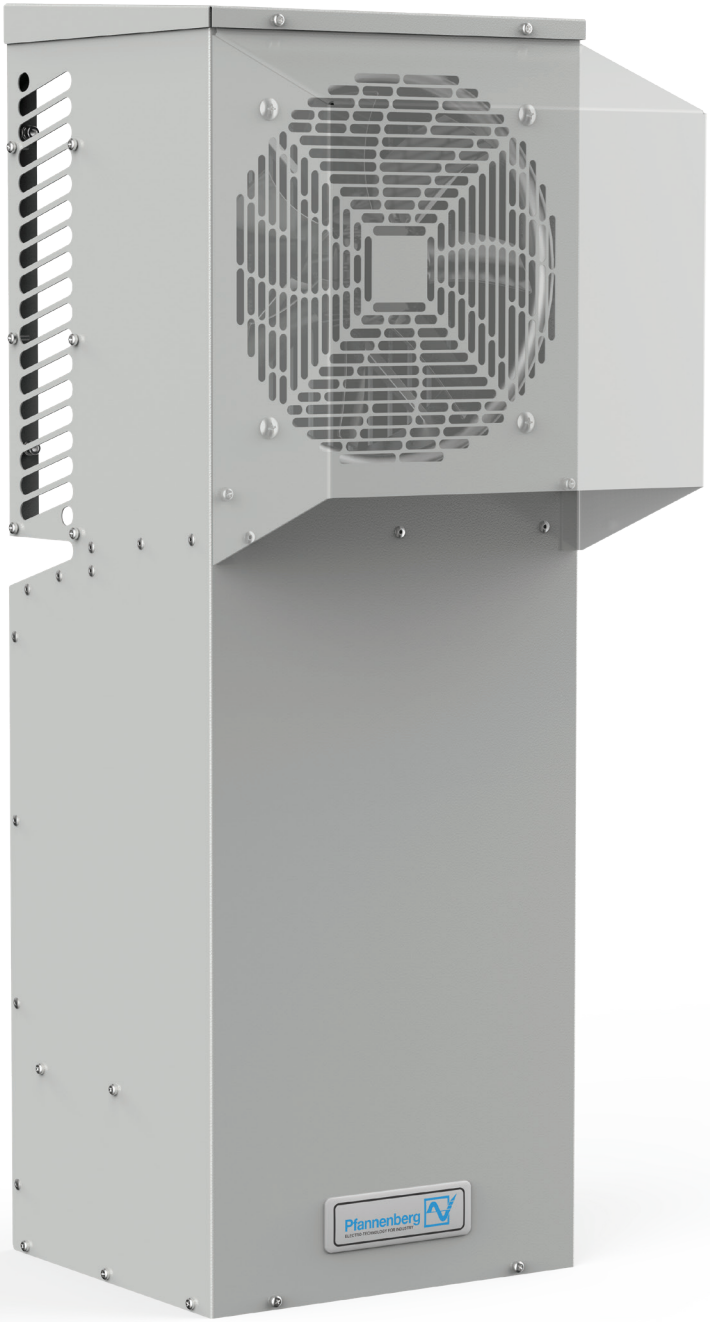
Best CCPD™
Produces superior Cooling Capacity Per Density vs. conventional heat exchanger and/or heat pipe solutions.

Energy Efficient
Utilizes lower temperature ambient air to cool warmer internal air without an active component such as a compressor which consumes high amounts of energy.

Reduced Maintenance
With only two mechanical components (fans), potential failure point is reduced to ensure continuous uptime of your processes.

Flexible Mounting Options
Unit can be installed vertically or horizontally, allowing the cool air to be focused where it is needed most.





Closed Loop Design
Designed to isolate external ambient air from internal air eliminating the risk of contaminates entering the cabinet. Compared to Filterfans® with Rainhoods, the PKS seals against gaseous substances, humidity and airborne particulates such as dust, keeping it away from sensitive components within the electrical enclosure.

Easy Installation
Our compact lightweight design means that the unit can be installed by just one person.

Self Protected from Harsh Environments
Our unit is uniquely designed to protect itself in NEMA 3R, 4, and 4X environments. An example of this is the location of our control electronics within our dry, cool interior circuit.

Eliminates Hotspots
High CFM fan for good air flow within the enclosure, ideal for removing hot spots.

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PATENT PENDING

For additional technical data, drawings and templates. www.pfannenbergusa.com

PKS 330X (150 Watts/°C) Kinetic System Air/Air Heat Exchangers

Model Number	Part Number	Voltage 50/60 Hz (VAC)	Specific Cooling Capacity (W/°C)	Specific Cooling Capacity (W/°F)	Cooling Capacity @ △T = 20°C (BTU/hr)	Power Consumption (Watts)	Nominal Run Current (Amps)	Mounting Dimensions* (Inches) Width	Depth	Height	Weight (without packaging) (lbs)
PKS 3301 Indoor Rated (NEMA Type 12)	12480811005	115	150	83	10,200	353	2.84	12	11	35	54
	12480821005	230	150	83	10,200	245	1.40	12	11	35	54
	12480831005	400/460	150	83	10,200	245	0.70	12	11	35	64
PKS 3303 Outdoor Rated (NEMA Type 3R/4)	12480813005	115	150	83	10,200	345	2.84	12	11	35	60
	12480823005	230	150	83	10,200	245	1.40	12	11	35	60
	12480833005	400/460	150	83	10,200	245	0.70	12	11	35	70
PKS 3304 Washdown (NEMA Type 4/4x)	12480814008	115	150	83	10,200	345	2.84	12	11	35	60
	12480824008	230	150	83	10,200	245	1.40	12	11	35	60
	12480834008	400/460	150	83	10,200	245	0.70	12	11	35	70

Additional Data	PKS 330X
Ambient Temp. Range	Min: -25°C / -13°F . . . +55°C / +131°F
Control Range	20°C to 60°C (68°F to 140°F); Factory Setting 35°C (95°F)
Design	**Housing/Cover:** Indoor/Outdoor - powder coated RAL 7035 (light gray); Washdown - 304 Stainless Steel

*Louver and rainhood dimensions not included on outdoor and washdown units.

For additional technical data, drawings and templates visit www.pfannenbergusa.com

Subject to technical amendments and misprints.

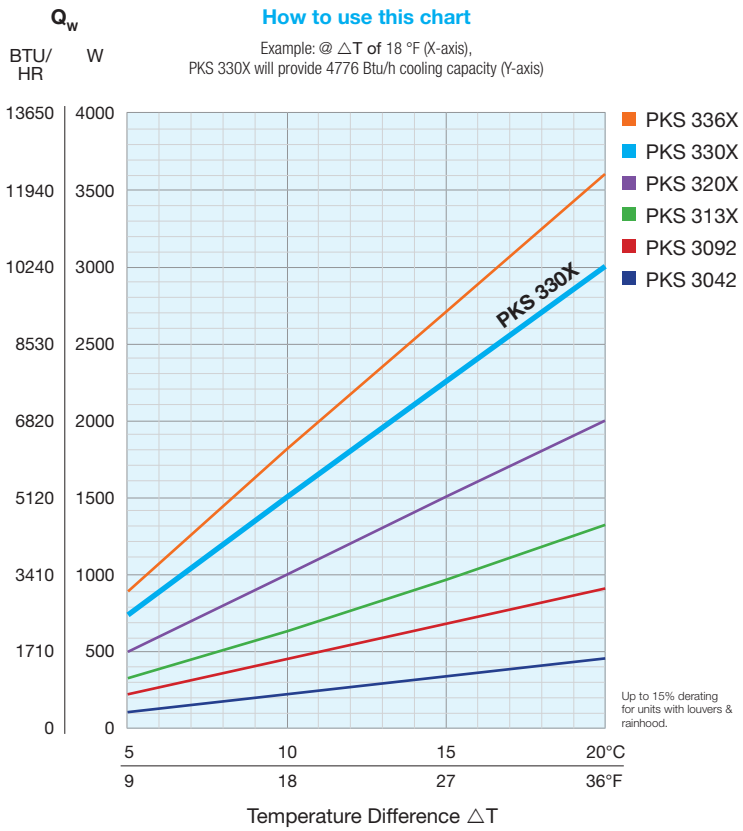
Available Models:

PKS 3301 Indoor Rated

PKS 3303 Outdoor Rated

PKS 3304 Washdown

Cooling Capacity Performance Curve



PKS 336X | AIR/AIR HEAT EXCHANGERS

180 W/°C

The PKS 336X Series Air/Air Heat Exchangers use **Pfannenberg's Kinetic System™** next generation cooling to exchange and move heat from an electrical enclosure to the outside environment. This is a perfect solution when concerned with the open loop designs that don't prevent corrosive gas, humidity and dust from entering the enclosure. Designed for indoor cooling, outdoor or remote applications that require a closed loop system to protect electronics. Available in 3 models; PKS 3361, PKS 3363, PKS 3364.

PFANNENBERG **KINETIC SYSTEM™**

Uses next generation cooling technology that out-performs conventional heat exchanger and/or heat pipe solutions.

Best CCPD™
Produces superior Cooling Capacity Per Density vs. conventional heat exchanger and/or heat pipe solutions.

Energy Efficient
Utilizes lower temperature ambient air to cool warmer internal air without an active component such as a compressor which consumes high amounts of energy.

Reduced Maintenance
With only two mechanical components (fans), potential failure point is reduced to ensure continuous uptime of your processes.

Flexible Mounting Options
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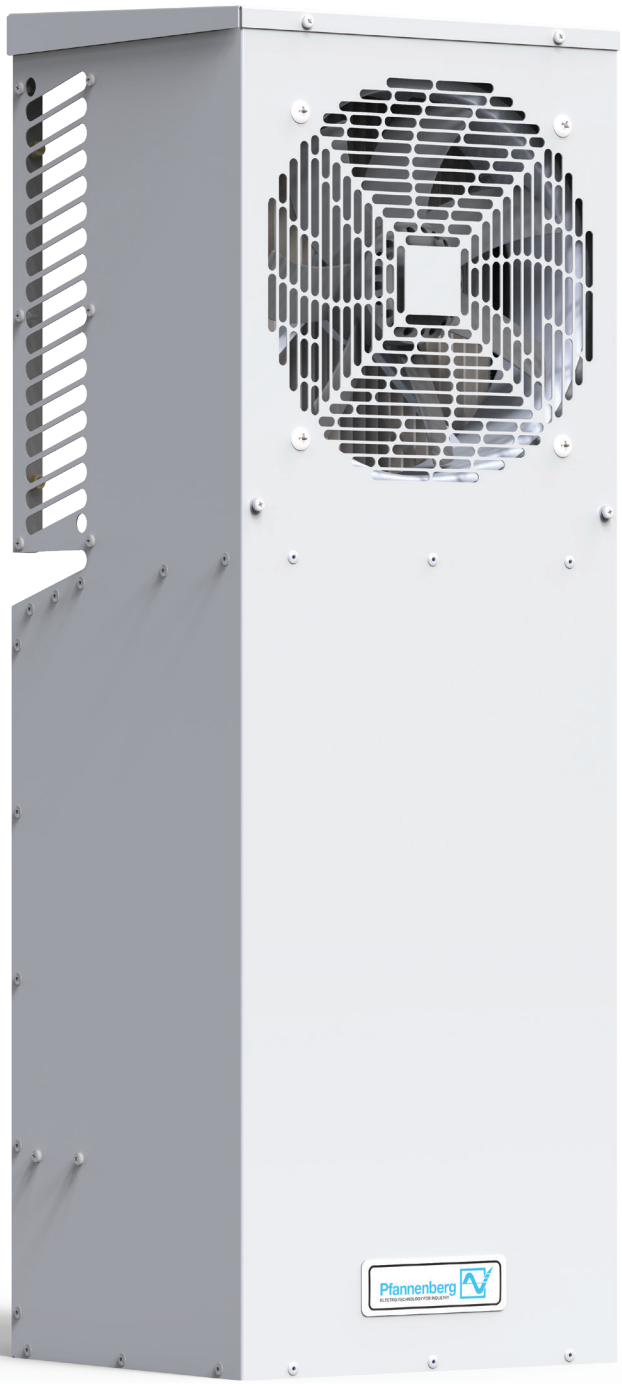

Closed Loop Design
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Easy Installation
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Eliminates Hotspots
High CFM fan for good air flow within the enclosure, ideal for removing hot spots.

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PATENT PENDING

For additional technical data, drawings and templates. www.pfannenbergusa.com

PKS 336X (180 Watts/°C) Kinetic System Air/Air Heat Exchangers

Model Number	Part Number	Voltage 50/60 Hz (VAC)	Specific Cooling Capacity (W/°C)	Specific Cooling Capacity (W/°F)	Cooling Capacity @ △T = 20°C (BTU/hr)	Power Consumption (Watts)	Nominal Run Current (Amps)	Mounting Dimensions* (Inches) Width	Depth	Height	Weight (without packaging) (lbs)
PKS 3361 Indoor Rated (NEMA Type 12)	12480911005	115	180	100	12,200	353	2.84	12	11	35	54
	12480921005	230	180	100	12,200	245	1.40	12	11	35	54
	12480931005	400/460	180	100	12,200	245	0.70	12	11	35	64
PKS 3363 Outdoor Rated (NEMA Type 3R/4)	12480913005	115	180	100	12,200	345	2.84	12	11	35	60
	12480923005	230	180	100	12,200	245	1.40	12	11	35	60
	12480933005	400/460	180	100	12,200	245	0.70	12	11	35	70
PKS 3364 Washdown (NEMA Type 4/4x)	12480914008	115	180	100	12,200	345	2.84	12	11	35	60
	12480924008	230	180	100	12,200	245	1.40	12	11	35	60
	12480934008	400/460	180	100	12,200	245	0.70	12	11	35	70

Additional Data	PKS 336X
Ambient Temp. Range	Min: -25°C / -13°F . . . +55°C / +131°F
Control Range	20°C to 60°C (68°F to 140°F); Factory Setting 35°C (95°F)
Design	**Housing/Cover:** Indoor/Outdoor - powder coated RAL 7035 (light gray); Washdown - 304 Stainless Steel

*Louver and rainhood dimensions not included on outdoor and washdown units.

For additional technical data, drawings and templates visit www.pfannenbergusa.com

Subject to technical amendments and misprints.

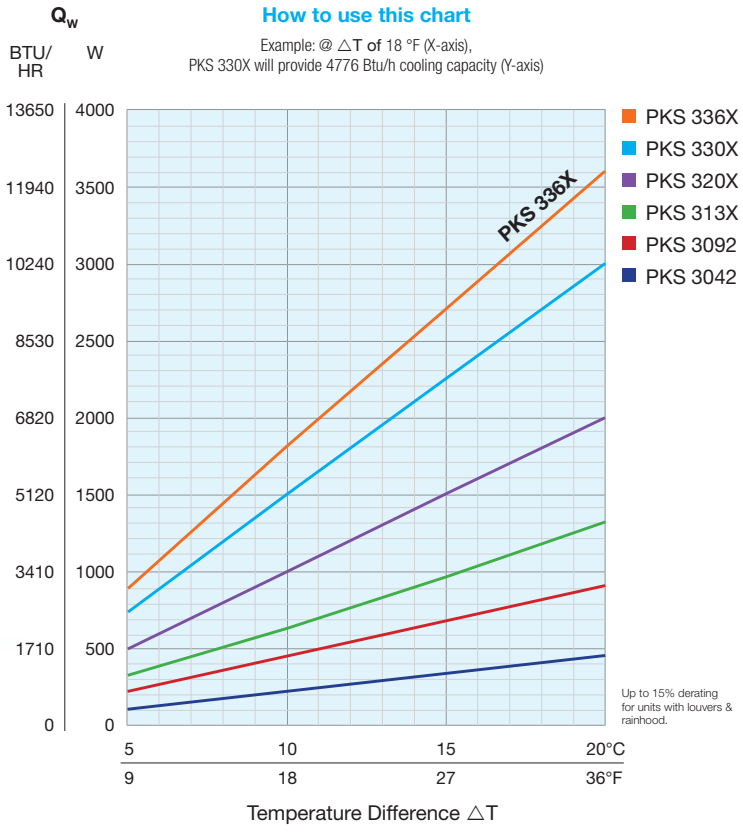
Available Models:

PKS 3361 Indoor Rated

PKS 3363 Outdoor Rated

PKS 3364 Washdown

Cooling Capacity Performance Curve




YOU Are
RESPONSIBLE
For Keeping This
Equipment Clean
Pfannenberg

Pfannenberg
ELECTRO-TECHNOLOGY FOR INDUSTRY

DTS 3000, DTT 6000 & DTI 6000 Series Cooling Units

Thermal Protection for Critical Electronics

Utilize closed loop cooling in tough industrial or outdoor applications with Pfannenberg's 'service-friendly' cooling units.

Pfannenberg's **DTS 3000 Series Cooling Units** are driven to meet the demands of our North American NEMA market. These units meet the needs of indoor NEMA Type 12 applications, NEMA Type 3R/4 outdoor applications and NEMA Type 4/4x stainless steel for washdown applications.

Pfannenberg's revolutionary designed **DTT Top Mount Cooling Units** offer unique protection through our innovative, patented condensate management system. These units can be safely installed above critical components with peace of mind.

The **DTI 6000 Series** allows for European-style recessed mounting on enclosure doors and/or side panels on modular systems. These "click & fit" units reduce installation times by more than 90%.

THE TECHNOLOGY OF COOLING
Cooling with Closed Loop Cooling Units

Pfannenberg cooling units operate on the principle of the Carnot cycle. This means that the cooling unit functions as a heat pump that "pumps" the thermal energy transferred from the electronic cabinet (heat dissipated from the components) up to a higher level of temperature (the ambient temperature can reach levels as high as + 55 °C). The air inside the enclosure is cooled down by the evaporator and at the same time dehumidified.

How do I know if a cooling unit is the right product for my application?

- If the ambient temperature is greater than the target internal temperature of the enclosure, active cooling is required.
- If a NEMA Type 12 to 4x rating is required - closed loop systems can maintain the NEMA Type rating of the cabinet.

Properly sizing a cooling unit

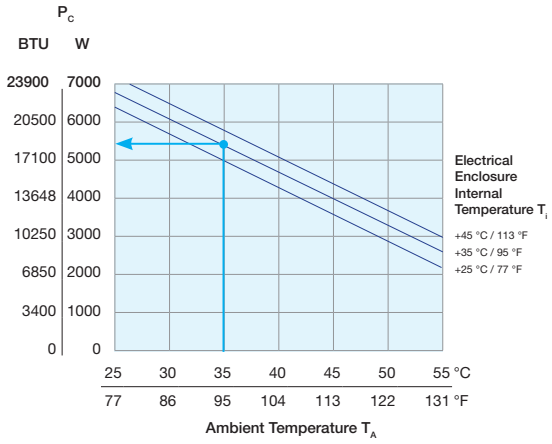
To properly size a cooling unit you must know the **required cooling capacity in Watts, mounting requirements (side, integrated or top mount) and the dimensions of the cooling unit and enclosure.**

$$\{P_C = P_D - P_R\} \quad \{P_R = C \times A \times \Delta T\}$$

- **P_C [Watt]:**
  Refrigeration capacity of a cooling unit.
- **P_D [Watt]:**
  Dissipation loss: Thermal power generated inside a cabinet by the dissipation loss of components.
- **P_R [Watt]:**
  Radiant heat gain/loss: Heat transfer through the skin of the enclosure (insulation factor not included).
- **C [$W/m^2 °C$]:**
  Coefficient of heat transmission.
- **A [m^2]:**
  Surface area of electronics cabinet.
- **ΔT[°C]:**
  Difference in temperature between the ambient air and the air inside the electronics cabinet.

Utilizing performance curves to properly size cooling units:

Pfannenberg utilizes the DIN standard 35/35 °C when rating our cooling units. Many other companies use 50/50 °C, which provides a higher, non-usable value. Customers should use their own application temperatures to determine the proper cooling capacity of the system.



Note: Cooling capacity may vary between voltage and configurations.

Important information when utilizing cooling units:

- The refrigeration capacity should exceed the dissipation loss from the installed components by approximately 10%.
- The enclosure should be sealed to prevent the inflow of ambient air.
- Use the door contact switch to impede operation with open doors and consequent excessive accumulation of condensation.
- Use cooling units with maximum clearance between air inflow and air outflow to prevent poor circulation.
- Make sure that the air inflow and air outflow in the external circuit is not hindered, preventing proper heat exchanging at the condenser.
- When using top-mounted cooling units, make sure that components with their own fans do not expel the air directly into the cooling units cool air outflow.
- Make sure unit is level.
- Setting the temperature to the lowest setting is not the optimal solution due to the condensation issues. The value we have preset on the cooling unit is a sound compromise between cooling the inside of the enclosure and the accumulation of condensation.

COOLING UNITS QUICK SELECTION CHART

Type	Cooling Capacity Btu/h	Rated Voltage	Dimensions H x W x D Inches (mm)	Approvals				Page
				UL	cUL	UR	CE	
DTS Series Indoor Side Mount NEMA Type 12 Cooling Units								
DTS 3021	900 - 1300	115 V / 230 V	15.5 (393.7) x 7 (177.8) x 7.53 (191.4)	●	●		●	46
DTS 3041	2000 - 3000	115 V / 230 V / 460 V	20.15 (512) x 10 (254) x 10.8 (274)	●	●		●	48
DTS 3141	3000 - 4000	115 V / 230 V / 400/460 V	29.46 (748) x 15.55 (395) x 9.3 (237)	●	●		●	50
DTS 3141 SL	3000 - 5000	115 V / 230 V / 400/460 V	36 (914) x 12 (305) x 12 (304)	●	●		●	52
DTS 3145	5000 - 7000	115 V / 230 V / 400/460 V	36 (914) x 12 (305) x 12 (304)	●	●		●	54
DTS 3241	7000 - 8500	115 V / 230 V / 400/460 V	47.60 (1209) x 15.6 (395) x 10.6 (269)	●	●		●	56
DTS 3245	9000 - 12000	115 V / 230 V / 400/460 V	53 (1347) x 16 (406) x 11.9 (301)	●	●		●	58
DTS 3441C	15000 - 20000	230 V / 400/460 V	56.75 (1440) x 16 (406) x 16 (405)	●	●		●	60
DTS 3641C	20000 - 24000	230 V / 400/460 V	65.5 (1665) x 19 (485) x 20.5 (520)	●	●		●	62
DTS Series Outdoor Cooling Units - NEMA Type 3R/4								
DTS 3031	900 - 1300	115 V / 230 V	15.5 (393.7) x 7 (177.8) x 7.53 (191.4)	●	●		●	48
DTS 3061	2000 - 3000	115 V / 230 V / 460 V	20.15 (512) x 10 (254) x 10.8 (274)	●	●		●	48
DTS 3161	3000 - 4000	115 V / 230 V / 400/460 V	29.46 (748) x 15.55 (395) x 11.55 (294)	●	●		●	50
DTS 3161 SL	3000 - 5000	230 V / 400/460 V	36 (914) x 12 (305) x 14.4 (366.2)	●	●		●	52
DTS 3165	5000 - 7000	115 V / 230 V / 400/460 V	36 (914) x 12 (305) x 14.5 (368.3)	●	●		●	54
DTS 3261	7000 - 8500	115 V / 230 V / 400/460 V	47.1209 (1209) x 15.55 (395) x 12.83 (326)	●	●		●	56
DTS 3265	9000 - 12000	115 V / 230 V / 400/460 V	53 (1347) x 16.2 (411) x 14.4 (365.2)	●	●		●	58
DTS 3461C	15000 - 20000	230 V / 400/460 V	56.75 (1440) x 16 (406) x 16 (405)	●	●		●	60
DTS 3661C	20000 - 24000	230 V / 400/460 V	65.5 (1665) x 19 (485) x 24.5 (620)	●	●		●	62
DTS Series Washdown Cooling Units - NEMA Type 4/4X								
DTS 3031 SS	900 - 1300	115 V / 230 V	15.5 (393.7) x 7 (177.8) x 7.53 (191.4)	●	●		●	48
DTS 3081	2000 - 3000	115 V / 230 V / 460 V	20.15 (512) x 10 (254) x 10.8 (274)	●	●		●	48
DTS 3181	3000 - 4000	115 V / 230 V / 400/460 V	29.45 (748) x 15.55 (395) x 11.55 (294)	●	●		●	50
DTS 3181 SL	3000 - 5000	230 V / 400/460 V	36 (914) x 12 (305) x 14.4 (366.2)	●	●		●	52
DTS 3185	5000 - 7000	115 V / 230 V / 400/460 V	36 (914) x 12 (305) x 14.5 (368.3)	●	●		●	54
DTS 3281	7000 - 8500	115 V / 230 V / 400/460 V	47 (1209) x 15.55 (395) x 12.83 (326)	●	●		●	56
DTS 3285	9000 - 12000	115 V / 230 V / 400/460 V	53 (1347) x 16.2 (411) x 14.4 (365.2)	●	●		●	58
DTS 3481C	15000 - 20000	230 V / 400/460 V	56.75 (1440) x 16 (406) x 19 (484.5)	●	●		●	60
DTS 3681C	20000 - 24000	230 V / 400/460 V	65.5 (1665) x 19 (485) x 24.5 (620)	●	●		●	62
DTI Series Integrated/Recessed (European)								
DTI 6201 C	3000-4000	230 V / 400/460 V	37.87 (962) x 16.14 (410) x 9.57 (243)			●	●	66
DTI 6301 C	5000-6000	230 V / 400/460 V	37.87 (962) x 16.14 (410) x 9.57 (243)			●	●	66
DTI 6201	3000 - 4000	230 V / 400/460 V	60.47 (1536) x 19.09 (485) x 8.58 (218)			●	●	68
DTI 6301	5000 - 6000	230 V / 400/460 V	60.47 (1536) x 19.09 (485) x 8.58 (218)			●	●	68
DTI 6401	7000 - 8000	400/460 V	60.47 (1536) x 19.09 (485) x 10.94 (278)			●	●	70
DTI 6501	9000 - 11000	400/460 V	60.47 (1536) x 19.09 (485) x 10.94 (278)			●	●	70
DTI 6801	13000 - 16000	400/460 V	60.59 (1539) x 19.09 (485) x 14.64 (372)			●	●	72
DTT Series Top Mount NEMA 12 Cooling Units								
DTT 6101	1200 - 2000	115 V / 230 V	17.13 (435) x 23.43 (595) x 15.55 (395)			●	●	76
DTT 6201	2500 - 4000	115 V / 230 V / 400/460 V	17.13 (435) x 23.43 (595) x 15.55 (395)			●	●	76
DTT 6301	4000 - 5500	115 V / 230 V / 400/460 V	17.13 (435) x 23.43 (595) x 19.49 (495)			●	●	78
DTT 6401	5500 - 7000	115 V / 230 V / 400/460 V	17.13 (435) x 23.43 (595) x 19.49 (495)			●	●	78
DTT 6601	7000 - 10000	400/460 V	19.09 (485) x 31.30 (795) x 22.64 (575)			●	●	80
DTT 6801	12000 - 14000	400/460 V	19.09 (485) x 31.30 (795) x 22.64 (575)			●	●	80

● available

DTS 3021/31/SS | COOLING UNITS

900 - 1300 Btu/h

The DTS 3021/31/SS series cooling units are ideal for small enclosures and for the cooling of hot spots in larger control cabinets. These units are particularly suited for the food industry and outdoor applications. Available in 3 models; DTS 3021 (NEMA Type 12) for indoor use, DTS 3031 (NEMA Type 3R/4) designed for outdoor use, and the stainless steel DTS 3031 SS (NEMA Type 4/4x) designed for wash-down applications.

Closed Loop Design
Designed to isolate the external ambient air from the internally conditioned air eliminating the risk of contaminants entering the cabinet.

Thermal Overload Protection
Compressor and fan motors are outfitted with integral temperature switches to shut down the unit in the event of excessive temperature. This increases the operating life of the compressor by preventing thermal overload trips.

Thermal Expansion Valve
Regulates the flow of refrigerant based on thermal demand for efficient performance over the entire operating temperature range.

Hermetically Sealed Compressor
The absence of any refrigerant fill valves eliminates leak paths. Recharging is never needed. 100% cooling capacity efficiency is ensured.

Condensate Drain Port
Permits effective collection and drainage of condensation.

ERP Efficiency Certified
As a component of the Kyoto Protocol to reduce carbon monoxide emissions, the European Energy Related Products (ERP) Directive includes an efficiency rating for fans. Pfannenberg proudly utilizes components which adhere to these requirements.

Rugged Design
Powder coated steel or stainless steel cover designed for manufacturing environments. Easily painted to match enclosure or machine.

Environmentally Friendly
Utilizes HFC-free R134a refrigerant versus a blended refrigerant for easier service and minimized negative impact to the environment.

Highest in Class Capacity
The compact, 7 inch width is ideal for small enclosures with a relatively small heat load.

DTS 30X1 Series (900 - 1300 Btu/h) Side-Mount Cooling Units

Model Number	Part Number	Voltage (VAC)	Frequency (Hz)	Power Consumption (W)	Nominal (Run) Current* @ 35A/35A °C	Fuse (maximum)** Class CC	Noise Level (according to EN ISO 3741) dB(A)	Weight (without packaging) lb (kg)
DTS 3021 Indoor Rated (NEMA Type 12)	13383144255	115	60	243	3.3	5.6	<64	30 (13.6)
	13383141255	230	50/60	253	2	4	<64	30 (13.6)
Design	**Housing:** galvanized sheet steel **Cover:** electrostatically powder coated RAL 7035 (light grey); for ANSI 61 grey use part no. ending in ...251							
DTS 3031 Outdoor Rated (NEMA Type 3R/4)	13383144355	115	60	243	3.3	5.6	<64	30 (13.6)
	13383141355	230	50/60	253	2	4	<64	30 (13.6)
Design	**Housing:** galvanized sheet steel **Cover:** electrostatically powder coated RAL 7035 (light grey); for ANSI 61 grey use part no. ending in ...351							
DTS 3031 SS Washdown (NEMA Type 4/4x)	13383144158	115	60	243	3.3	5.6	<64	30 (13.6)
	13383141158	230	50/60	253	2	4	<64	30 (13.6)
Design	**Housing:** stainless steel 304 **Cover:** stainless steel 304							

Additional Data		DTS 3021	DTS 3031	DTS 3031 SS	
Ambient Temperature Range		+ 46 … + 114/ + 8 … + 45			°F / °C
Control range (adjustable)	**SC**	+ 50 … + 104 / + 10 … + 40; factory setting + 95 / + 35			
Refrigerant	**type**	R134a			
	quantity	145 - 150			g
Condensate management		condensate drain			
Protection system according to NEMA Type		12	3R/4	4/4X	against enclosure when properly installed
		NEMA 1 towards the surroundings when properly installed			
Accessories		For spare part kits and additional accessories visit pgs. 74-75 in this catalog			

* For the MCA (Maximum Current Ampacity) value per UL, please consult product technical datasheets available on our website.
** Suitable for Transformer Inrush Protection for the DTS 3000 units.

For additional technical data, drawings and templates.
www.pfannenbergusa.com

Available Models:

DTS 3021
Indoor Rated
(NEMA Type 12)

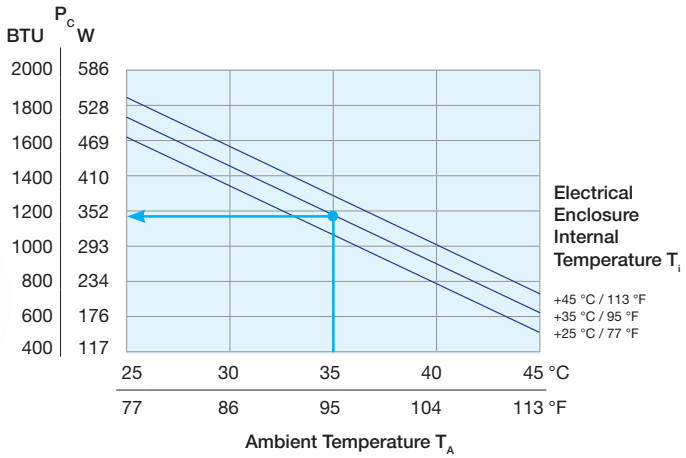
DTS 3031
Outdoor Rated
(NEMA Type 3R/4)

DTS 3031 SS
Washdown
(NEMA Type 4/4x)

Cooling Capacity Performance Curve

How to use this chart

Example: @ 95 °F (ambient, X-axis), @ 95 °F (internal, diagonal lines) = 1194 Btu/h cooling capacity (Y-axis)



Note: Cooling capacity may vary between voltage and configurations.

DTS 30X1 | COOLING UNITS

2000 - 3000 Btu/h

The DTS 30X1 series cooling units are ideal for small enclosures and for the cooling of hot spots in larger control cabinets. These units are particularly suited for the food industry and outdoor applications. Available in 3 models; DTS 3041 (NEMA Type 12) for indoor use, DTS 3061 (NEMA Type 3R/4) designed for outdoor use, and the stainless steel DTS 3081 (NEMA Type 4/4x) designed for wash-down applications.

Closed Loop Design
Designed to isolate the external ambient air from the internally conditioned air eliminating the risk of contaminants entering the cabinet.

Thermal Overload Protection
Compressor and fan motors are outfitted with integral temperature switches to shut down the unit in the event of excessive temperature. This increases the operating life of the compressor by preventing thermal overload trips.

Pressure Overload Protection
High pressure cutout switch ensures safety by shutting off the compressor in the event of excessive pressure appearing in the refrigeration circuit.

Thermal Expansion Valve
Regulates the flow of refrigerant based on thermal demand for efficient performance over the entire operating temperature range.

Hermetically Sealed Compressor
The absence of any refrigerant fill valves eliminates leak paths. Recharging is never needed. 100% cooling capacity efficiency is ensured.

ERP Efficiency Certified
As a component of the Kyoto Protocol to reduce carbon monoxide emissions, the European Energy Related Products (ERP) Directive includes an efficiency rating for fans. Pfannenberg proudly utilizes components which adhere to these requirements.

Environmentally Friendly
Utilizes HFC-free R134a refrigerant versus a blended refrigerant for easier service and minimized negative impact to the environment.

High Airflow Backward Curve Impeller Fan
Provides high airflow in a long lasting, single bearing design. Outperforms typical two-bearing blowers with nearly twice the lifespan.

Highest in Class Capacity
The compact, 10 inch width is ideal for small enclosures with a relatively small heat load. The integral power cord helps simplify installation. An integral ingress filter is provided on type 12/3R/4 versions.

Corrosion Protection
Outdoor and washdown units have a special coating on pipes and coils on the ambient side of the unit to provide maximum protection from saltwater, sour gas, and other corrosive substances.

Optimized Condenser Designs
The wide fin spacing is less susceptible to clogging from dirt buildup which can cause the unit to work harder and hamper efficiency.

Rugged Design
Powder coated steel or stainless steel cover designed for manufacturing environments. Easily painted to match enclosure or machine.

High Ambient Performance
The DTS 3000 Series Cooling Units were designed utilizing high temperature compressors and larger condensers. Both the indoor NEMA Type 12 units and outdoor units perform very well in environments that require cooling where the maximum ambient temperature is 131° F. High ambient options are also available to 140° F.

Easy to Maintain
Both the indoor and outdoor 30X1 cooling units include an integrated Pfannenberg PFA Exhaust Filter for simple replacement of the filter.

c UL us CE

DTS 30X1 Series (2000 - 3000 Btu/h) Side-Mount Cooling Units

Model Number	Part Number	Voltage (VAC)	Frequency (Hz)	Power Consumption (W)	Nominal (Run) Current* @ 35A/35A °C	Fuse (maximum)** Class CC	Noise Level (according to EN ISO 3741) dB(A)	Weight (without packaging) lb (kg)
DTS 3041 Indoor Rated (NEMA Type 12)	13382344255	115	60	690	3.12	5.6	<64	51 (23)
	13382341255	230	50/60	663	1.52	2.8	<64	51 (23)
	13382336255	400/460	50/60	870	0.76	1.4	<64	62 (28)
Design	**Housing:** galvanized sheet steel **Cover:** electrostatically powder coated RAL 7035 (light grey); for ANSI 61 grey use part no. ending in ...251							
DTS 3061 Outdoor Rated (NEMA Type 3R/4)	13382344355	115	60	690	3.12	5.6	<64	51 (23)
	13382341355	230	50/60	663	1.52	2.8	<64	51 (23)
	13382336355	400/460	50/60	870	0.76	1.4	<64	62 (28)
Design	**Housing:** galvanized sheet steel **Cover:** electrostatically powder coated RAL 7035 (light grey); for ANSI 61 grey use part no. ending in ...351							
DTS 3081 Washdown (NEMA Type 4/4x)	13382344300	115	60	690	3.12	5.6	<64	55 (25)
	13382341300	230	50/60	663	1.52	2.8	<64	55 (25)
	13382336158	400/460	50/60	870	0.76	1.4	<64	66 (30)
Design	**Housing:** stainless steel 304 **Cover:** stainless steel 304							

Additional Data		DTS 3041	DTS 3061	DTS 3081	
Ambient Temperature Range		+ 46 … + 114 / + 8 … + 45	+ 32 … + 131 / 0 … + 55		°F / °C
Control range (adjustable)	SC	+ 50 … + 104 / + 10 … + 40; factory setting + 95 / + 35			
Refrigerant	type	R134a			
	quantity	400			g
Condensate management		condensate drain			
Protection system according to NEMA Type		12	3R/4	4/4X	against enclosure when properly installed
		NEMA 1 towards the surroundings when properly installed			
Accessories		For spare part kits and additional accessories visit pgs. 74-75 in this catalog			

* For the MCA (Maximum Current Ampacity) value per UL, please consult product technical datasheets available on our website.

** Suitable for Transformer Inrush Protection for the DTS 3000 units.

For additional technical data, drawings and templates.
www.pfannenbergusa.com

Available Models:

DTS 3041
Indoor Rated
(NEMA Type 12)

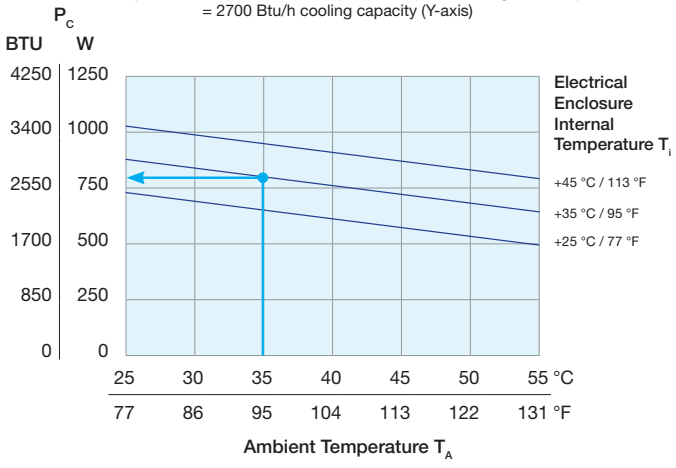
DTS 3061
Outdoor Rated
(NEMA Type 3R/4)

DTS 3081
Washdown
(NEMA Type 4/4x)

Cooling Capacity Performance Curve

How to use this chart

Example: @ 95 °F (ambient, X-axis), @ 95 °F (internal, diagonal lines) = 2700 Btu/h cooling capacity (Y-axis)



Note: Cooling capacity may vary between voltage and configurations.

DTS 31X1 | COOLING UNITS

3000 - 4000 Btu/h

The DTS 31X1 series cooling units utilize a long internal air path to capture heat above the components and provide cool air below. Available in 3 models; DTS 3141 (NEMA Type 12) for indoor use, DTS 3161 (NEMA Type 3R/4) designed for outdoor use, and the stainless steel DTS 3181 (NEMA Type 4/4x) designed for washdown applications.

Closed Loop Design
Designed to isolate the external ambient air from the internally conditioned air eliminating the risk of contaminants entering the cabinet.

Thermal Overload Protection
Compressor and fan motors are outfitted with integral temperature switches to shut down the unit in the event of excessive temperature. This increases the operating life of the compressor by preventing thermal overload trips.

Environmentally Friendly
Utilizes HFC-free R134a refrigerant versus a blended refrigerant for easier service and minimized negative impact to the environment.

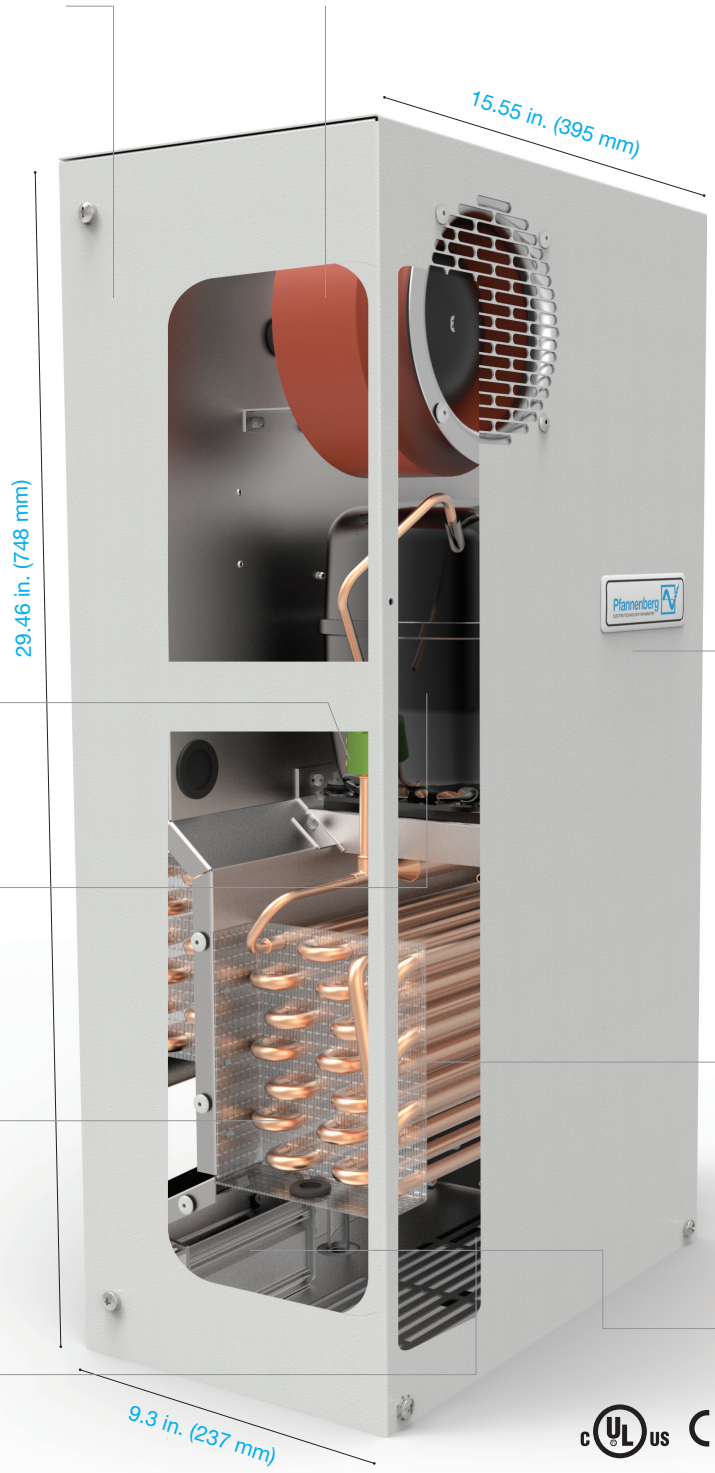
Pressure Overload Protection
High pressure cutout switch ensures safety by shutting off the compressor in the event of excessive pressure appearing in the refrigeration circuit.

Hermetically Sealed Compressor
The absence of any refrigerant fill valves eliminates leak paths. Recharging is never needed. 100% cooling capacity efficiency is ensured.

Corrosion Protection
Outdoor and washdown units have a special coating on pipes and coils on the ambient side of the unit to provide maximum protection from saltwater, sour gas, and other corrosive substances.

Thermal Expansion Valve
Regulates the flow of refrigerant based on thermal demand for efficient performance over the entire operating temperature range.

High Airflow Backward Curve Impeller Fan
Provides high airflow in a long lasting, single bearing design. Outperforms typical two-bearing blowers with nearly twice the lifespan.



ERP Efficiency Certified
As a component of the Kyoto Protocol to reduce carbon monoxide emissions, the European Energy Related Products (ERP) Directive includes an efficiency rating for fans. Pfannenberg proudly utilizes components which adhere to these requirements.

High Ambient Performance
The DTS 3000 Series Cooling Units were designed utilizing high temperature compressors and larger condensers. Both the indoor NEMA Type 12 units and outdoor units perform very well in environments that require cooling where the maximum ambient temperature is 131° F.

Rugged Design
Powder coated steel or stainless steel cover designed for manufacturing environments. Easily painted to match enclosure or machine.

Self Protected from Harsh Environments
Our unit is uniquely designed to protect itself in NEMA 3R, 4, and 4X environments. An example of this is the location of our control electronics within our dry, cool interior circuit.

Maintenance Free, Filterless Design
The wide fin spacing is less susceptible to clogging from dirt buildup which can cause the unit to work harder and hamper efficiency.

Active Condensate Management
Condensation is a natural by-product of refrigeration. The heated condensate collection pan boils this off thereby eliminating the need for drain tubes and buckets. To conserve power, this heater only activates when necessary.

DTS 31X1 Series (3000 - 4000 Btu/h) Side-Mount Cooling Units

Model Number	Part Number	Voltage (VAC)	Frequency (Hz)	Power Consumption (W)	Nominal (Run) Current* @ 35A/35A °C	Fuse (maximum)** Class CC	Noise Level (according to EN ISO 3741) dB(A)	Weight (without packaging) lb (kg)
DTS 3141 Indoor Rated (NEMA Type 12)	13385444255	115	60	845	7.51	12	<70	84 (38)
	13385441255	230	50/60	795	4.49	8	<70	84 (38)
	13385436255	400/460	50/60	1200	2.25	4	<70	88 (40)
Design	**Housing:** galvanized sheet steel **Cover:** electrostatically powder coated RAL 7035 (light grey); for ANSI 61 grey use part no. ending in ...251							
DTS 3161 Outdoor Rated (NEMA Type 3R/4)	13385444355	115	60	845	7.51	12	<70	89 (40)
	13385441355	230	50/60	795	4.49	8	<70	89 (40)
	13385436355	400/460	50/60	1200	2.25	4	<70	92 (42)
Design	**Housing:** galvanized sheet steel **Cover:** electrostatically powder coated RAL 7035 (light grey); for ANSI 61 grey use part no. ending in ...351							
DTS 3181 Washdown (NEMA Type 4/4x)	13385444158	115	60	845	7.51	12	<70	92 (42)
	13385441158	230	50/60	795	4.49	8	<70	92 (42)
	13385436158	400/460	50/60	1200	2.25	4	<70	97 (44)
Design	**Housing:** galvanized sheet steel **Cover:** stainless steel 304							

Additional Data		DTS 3141	DTS 3161	DTS 3181	
Ambient Temperature Range		+ 59 … + 131 / + 15 … + 55	+ 32 … + 131 / + 0 … + 55		°F / °C
Control range (adjustable)	**SC**	+ 77 … + 113 / + 25 … + 45; factory setting + 95 / + 35			
Refrigerant	**type**	R134a			
	quantity	400			g
Condensate management		active condensate evaporation system with safety overflow			
Protection system according to NEMA Type		12	3R/4	4/4X	against enclosure when properly installed
		NEMA 1 towards the surroundings when properly installed			
Accessories		For spare part kits and additional accessories visit pgs. 74-75 in this catalog			

* For the MCA (Maximum Current Ampacity) value per UL, please consult product technical datasheets available on our website.

** Suitable for Transformer Inrush Protection for the DTS 3000 units.

For additional technical data, drawings and templates.
www.pfannenbergusa.com

Available Models:

DTS 3141
Indoor Rated
(NEMA Type 12)

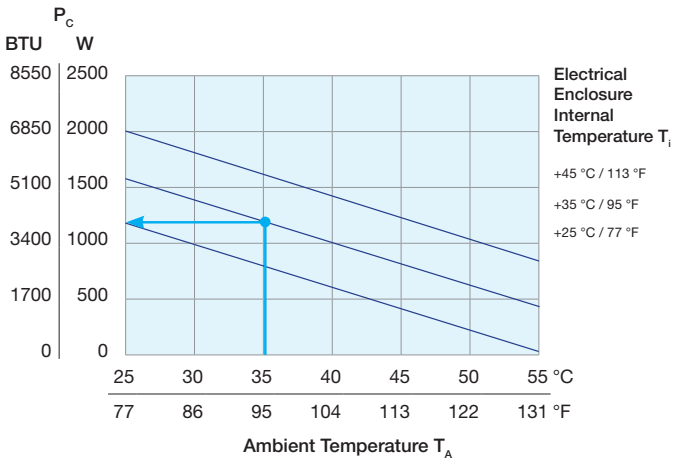
DTS 3161
Outdoor Rated
(NEMA Type 3R/4)

DTS 3181
Washdown
(NEMA Type 4/4x)

Cooling Capacity Performance Curve

How to use this chart

Example: @ 95 °F (ambient, X-axis), @ 95 °F (internal, diagonal lines) = 4100 Btu/h cooling capacity (Y-axis)



Note: Cooling capacity may vary between voltage and configurations.

DTS 31X1SL | COOLING UNITS

3000 - 5000 Btu/h

The DTS 31X1SL series cooling units are designed to fit shallow enclosures vs 31X1 standard model. Available in 3 models; DTS 3141 SL (NEMA Type 12) for indoor use, DTS 3161 SL (NEMA Type 3R/4) designed for outdoor use, and the stainless steel DTS 3181 SL (NEMA Type 4/4x) designed for washdown applications.

Closed Loop Design
Designed to isolate the external ambient air from the internally conditioned air eliminating the risk of contaminants entering the cabinet.

High Ambient Performance
The DTS 3000 Series Cooling Units were designed utilizing high temperature compressors and larger condensers. Both the indoor NEMA Type 12 units and outdoor units perform very well in environments that require cooling where the maximum ambient temperature is 131° F.

Thermal Expansion Valve
Regulates the flow of refrigerant based on thermal demand for efficient performance over the entire operating temperature range.

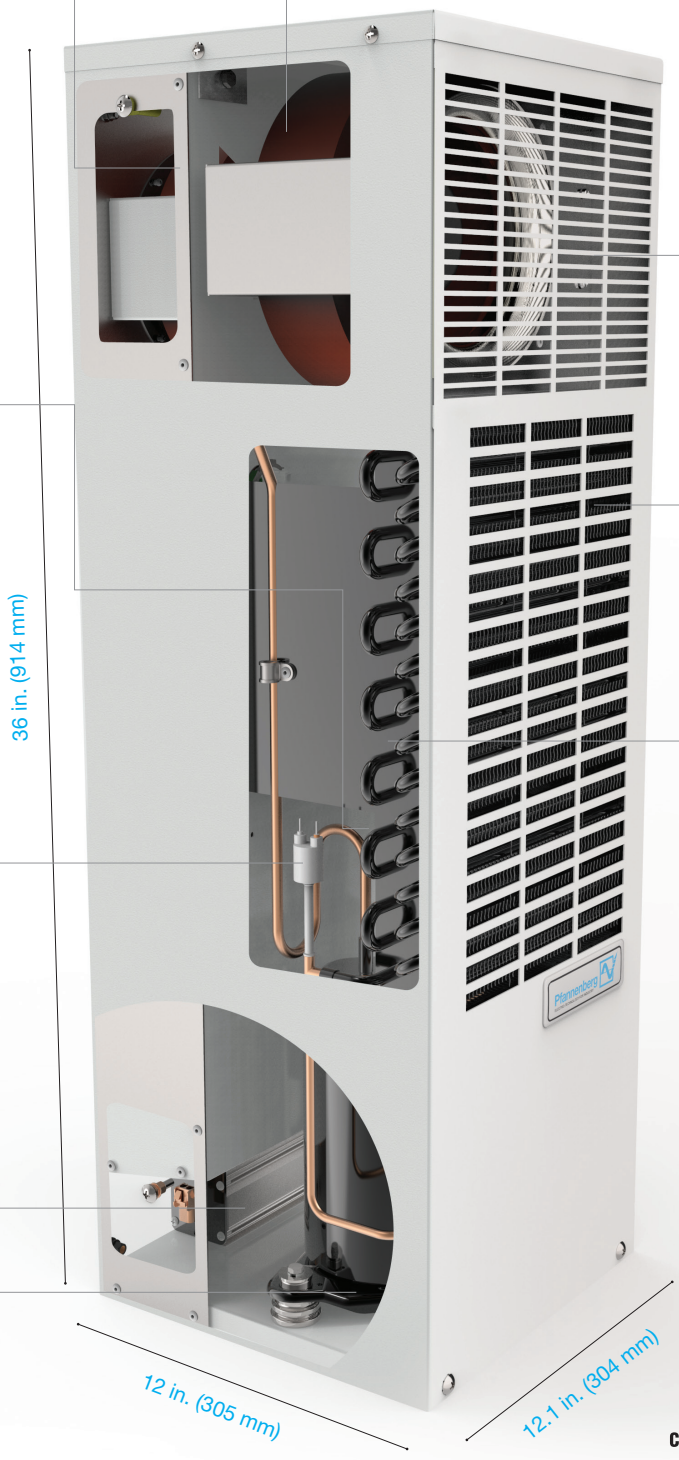
Thermal Overload Protection
Compressor and fan motors are outfitted with integral temperature switches to shut down the unit in the event of excessive temperature. This increases the operating life of the compressor by preventing thermal overload trips.

Pressure Overload Protection
High pressure cutout switch ensures safety by shutting off the compressor in the event of excessive pressure appearing in the refrigeration circuit.

Active Condensate Management
Condensation is a natural by-product of refrigeration. The heated condensate collection pan boils this off thereby eliminating the need for drain tubes and buckets. To conserve power, this heater only activates when necessary.

Hermetically Sealed Compressor
The absence of any refrigerant fill valves eliminates leak paths. Recharging is never needed. 100% cooling capacity efficiency is ensured.

High Airflow Backward Curve Impeller Fan
Provides high airflow in a long lasting, single bearing design. Outperforms typical two-bearing blowers with nearly twice the lifespan.



ERP Efficiency Certified
As a component of the Kyoto Protocol to reduce carbon monoxide emissions, the European Energy Related Products (ERP) Directive includes an efficiency rating for fans. Pfannenberg proudly utilizes components which adhere to these requirements.

Rugged Design
Powder coated steel or stainless steel cover designed for manufacturing environments. Easily painted to match enclosure or machine.

Maintenance Free, Filterless Design
The wide fin spacing is less susceptible to clogging from dirt buildup which can cause the unit to work harder and hamper efficiency.

Corrosion Protection
Outdoor and washdown units have a special coating on pipes and coils on the ambient side of the unit to provide maximum protection from saltwater, sour gas, and other corrosive substances.

Environmentally Friendly
Utilizes HFC-free R134a refrigerant versus a blended refrigerant for easier service and minimized negative impact to the environment.

Self Protected from Harsh Environments
Our unit is uniquely designed to protect itself in NEMA 3R, 4, and 4X environments. An example of this is the location of our control electronics within our dry, cool interior circuit.

DTS 31X1 SL Series (3000 - 5000 Btu/h) Side-Mount Cooling Units

Model Number	Part Number	Voltage (VAC)	Frequency (Hz)	Power Consumption (W)	Nominal (Run) Current* @ 35A/35A °C	Fuse (maximum)** Class CC	Noise Level (according to EN ISO 3741) dB(A)	Weight (without packaging) lb (kg)
DTS 3141 SL Indoor Rated (NEMA Type 12)	13383444255	115	60	917	7.51	12	<70	108 (49)
	13383441255	230	50/60	890	4.49	8	<70	108 (49)
	13383436255	400/460	50/60	751	2.25	4	<70	108 (49)
Design	**Housing:** galvanized sheet steel **Cover:** electrostatically powder coated RAL 7035 (light grey); for ANSI 61 grey use part no. ending in ...251							
DTS 3161 SL Outdoor Rated (NEMA Type 3R/4)	13383441355	230	50/60	890	4.49	8	<70	108 (49)
	13383436355	400/460	50/60	751	2.25	4	<70	108 (49)
Design	**Housing:** galvanized sheet steel **Cover:** electrostatically powder coated RAL 7035 (light grey); for ANSI 61 grey use part no. ending in ...351							
DTS 3181 SL Washdown (NEMA Type 4/4x)	13383441158	230	50/60	890	4.49	8	<70	108 (49)
	13383436158	400/460	50/60	751	2.25	4	<70	108 (49)
Design	**Housing:** galvanized sheet steel **Cover:** stainless steel 304							

Additional Data		DTS 3141 SL	DTS 3161 SL	DTS 3181 SL	
Ambient Temperature Range	115 VAC	+ 59 … + 113/ + 15 … + 45	N/A	N/A	°F / °C
	460/230 VAC	+ 59 … + 131/ + 15 … + 55	+ 32… + 131 / + 0 … + 55	+ 32 … + 131 / 0 … + 55	
Control range (adjustable)	SC	+ 77 … + 113 / + 25 … + 45; factory setting + 95 / + 35			
Refrigerant	type	R134a			
	quantity	900			g
Condensate management		active condensate evaporation system with safety overflow			
Protection system according to NEMA Type		12	3R/4	4/4X	against enclosure when properly installed
		NEMA 1 towards the surroundings when properly installed			
Accessories		For spare part kits and additional accessories visit pgs. 74-75 in this catalog			

* For the MCA (Maximum Current Ampacity) value per UL, please consult product technical datasheets available on our website.
** Suitable for Transformer Inrush Protection for the DTS 3000 units.

For additional technical data, drawings and templates.
www.pfannenbergusa.com

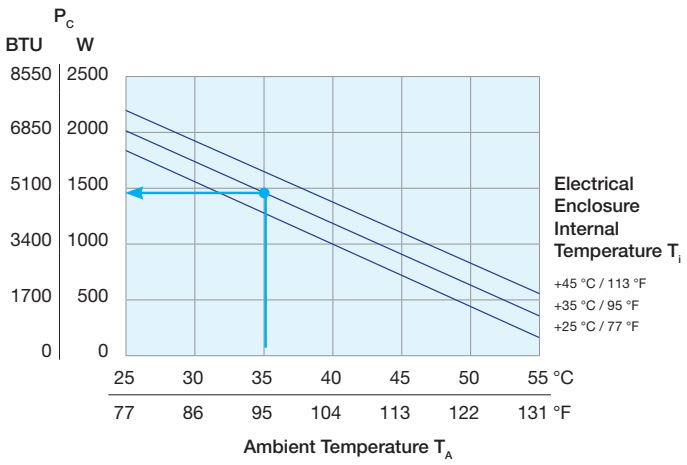
Available Models:

DTS 3141 SL Indoor Rated (NEMA Type 12)
DTS 3161 SL Outdoor Rated (NEMA Type 3R/4)
DTS 3181 SL Washdown (NEMA Type 4/4x)

Cooling Capacity Performance Curve

How to use this chart

Example: @ 95 °F (ambient, X-axis), @ 95 °F (internal, diagonal lines) = 5097 Btu/h cooling capacity (Y-axis)



Note: Cooling capacity may vary between voltage and configurations.

DTS 31X5 | COOLING UNITS

5000 - 7000 Btu/h

Our DTS 31X5 cooling units are an ideal solution for a wide variety of applications. These units are particularly suited for compact enclosures and are available in 3 models; DTS 3145 (NEMA Type 12) for indoor use, DTS 3165 (NEMA Type 3R/4) designed for outdoor use, and the stainless steel DTS 3185 (NEMA Type 4/4x) designed for washdown applications. Available options include a low ambient package and enclosure heater.

ERP Efficiency Certified
As a component of the Kyoto Protocol to reduce carbon monoxide emissions, the European Energy Related Products (ERP) Directive includes an efficiency rating for fans. Pfannenberg proudly utilizes components which adhere to these requirements.

Phase Protection
Three-phase 400/460 VAC powered units are protected from phase mis-wiring.

Pluggable power connection
Easily made without opening the chassis.

Easy Access Control Panel
Electrical controls are easily accessible with the flip down access panel.

Pressure Overload Protection
High pressure cutout switch ensures safety by shutting off the compressor in the event of excessive pressure appearing in the refrigeration circuit.

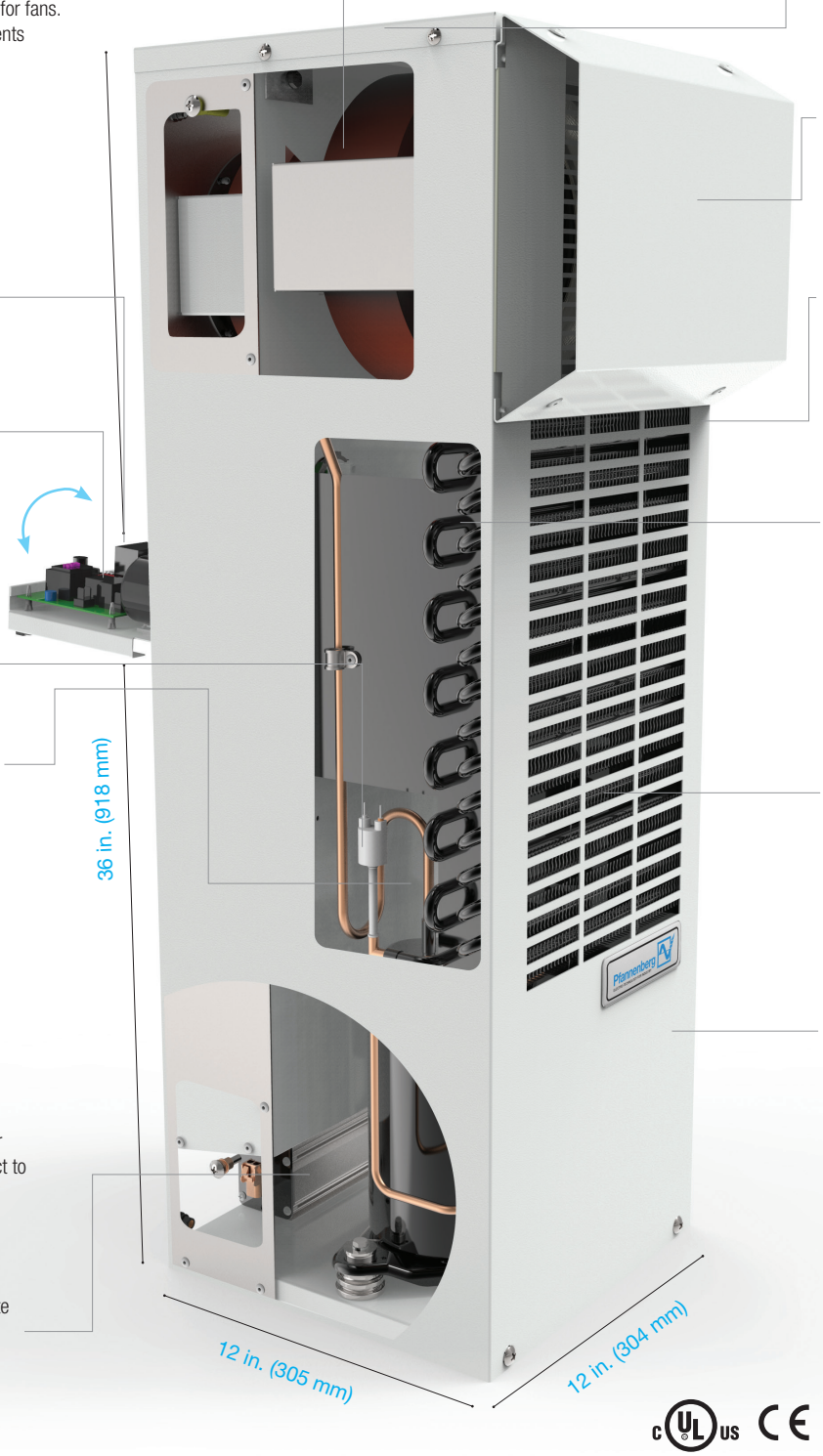
Thermal Expansion Valve
Regulates the flow of refrigerant based on thermal demand for efficient performance over the entire operating temperature range.

Thermal Overload Protection
Compressor and fan motors are outfitted with integral temperature switches to shut down the unit in the event of excessive temperature. This increases the operating life of the compressor by preventing thermal overload trips.

Environmentally Friendly
Utilizes HFC-free R134a refrigerant versus a blended refrigerant for easier service and minimized negative impact to the environment.

Active Condensate Management
Condensation is a natural by-product of refrigeration. The heated condensate collection pan boils this off thereby eliminating the need for drain tubes and buckets. To conserve power, this heater only activates when necessary.

High Airflow Backward Curve Impeller Fan
Provides high airflow in a long lasting, single bearing design. Outperforms typical two-bearing blowers with nearly twice the lifespan.



Lifting Lug Ports
Threaded holes accommodate the installation of lifting lugs to facilitate safe installation.

Self Protected from Harsh Environments
Our unit is uniquely designed to protect itself in NEMA 3R, 4, and 4X environments. An example of this is the location of our control electronics within our dry, cool interior circuit.

Rugged Design
Powder coated steel or stainless steel cover designed for manufacturing environments. Easily painted to match enclosure or machine.

Corrosion Protection
Outdoor and washdown units have a special coating on pipes and coils on the ambient side of the unit to provide maximum protection from saltwater, sour gas, and other corrosive substances.

Maintenance Free, Filterless Design
The wide fin spacing is less susceptible to clogging from dirt buildup which can cause the unit to work harder and hamper efficiency.

New Narrower Footprint
Compact design delivers high cooling capacity to enclosures as small as 12 inches (300mm) in width.

High Ambient Performance
The DTS 3000 Series Cooling Units were designed utilizing high temperature compressors and larger condensers. Both the indoor NEMA Type 12 units and outdoor units perform very well in environments that require cooling where the maximum ambient temperature is 131° F. High ambient options are also available to 140° F.

DTS 31X5 Series (5000 - 7000 Btu/h) Side-Mount Cooling Units

Model Number	Part Number	Voltage (VAC)	Frequency (Hz)	Power Consumption (W)	Nominal (Run) Current* @ 35A/35A °C	Fuse (maximum)** Class CC	Noise Level (according to EN ISO 3741) dB(A)	Weight (without packaging) lb (kg)
DTS 3145 Indoor Rated (NEMA Type 12)	13383644255	115	60	1000	8.57	15	<70	108 (49)
	13383639255	230	50/60	1020	5.58	10	<70	108 (49)
	13383636255	400/460	50/60	1283	2.72	5	<70	108 (49)
Design	**Housing:** galvanized sheet steel **Cover:** electrostatically powder coated RAL 7035 (light grey); for ANSI 61 grey use part no. ending in ...251							
DTS 3165 Outdoor Rated (NEMA Type 3R/4)	13383644355	115	60	1000	8.57	15	<70	108 (49)
	13383639355	230	50/60	1020	5.58	10	<70	108 (49)
	13383636355	400/460	50/60	1283	2.72	5	<70	108 (49)
Design	**Housing:** galvanized sheet steel **Cover:** electrostatically powder coated RAL 7035 (light grey); for ANSI 61 grey use part no. ending in ...351							
DTS 3185 Washdown (NEMA Type 4/4x)	13383644158	115	60	1000	8.57	15	<70	108 (49)
	13383639158	230	50/60	1020	5.58	10	<70	108 (49)
	13383636158	400/460	50/60	1283	2.72	5	<70	108 (49)
Design	**Housing:** galvanized sheet steel **Cover:** stainless steel 304							

Additional Data		DTS 3145	DTS 3165	DTS 3185	
Ambient Temperature Range		+ 59 … + 131 / + 15 … + 55	+ 32 … + 131 / + 0 … + 55		°F / °C
Control range (adjustable)	SC	+ 77 … + 113 / + 25 … + 45; factory setting + 95 / + 35			
Refrigerant	type	R134a			
	quantity	750			g
Condensate management		active condensate evaporation system with safety overflow			
Protection system according to NEMA Type		12	3R/4	4/4X	against enclosure when properly installed
		NEMA 1 towards the surroundings when properly installed			
Accessories		For spare part kits and additional accessories visit pgs. 74-75 in this catalog			

* For the MCA (Maximum Current Ampacity) value per UL, please consult product technical datasheets available on our website.

** Suitable for Transformer Inrush Protection for the DTS 3000 units.

For additional technical data, drawings and templates.
www.pfannenbergusa.com

Available Models:

DTS 3145 Indoor Rated (NEMA Type 12)

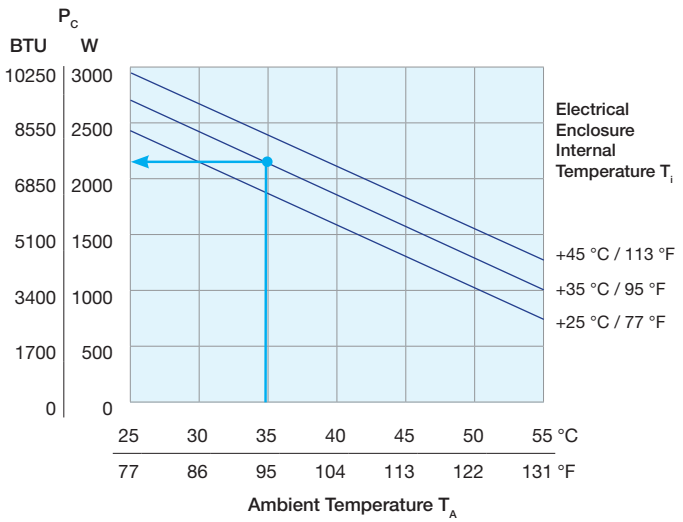
DTS 3165 Outdoor Rated (NEMA Type 3R/4)

DTS 3185 Washdown (NEMA Type 4/4x)

Cooling Capacity Performance Curve

How to use this chart

Example: @ 95 °F (ambient, X-axis), @ 95 °F (internal, diagonal lines) = 6995 Btu/h cooling capacity (Y-axis)



Note: Cooling capacity may vary between voltage and configurations.

DTS 32X1 | COOLING UNITS

7000 - 8500 Btu/h

The DTS 32X1 series cooling units utilize a long internal air path to capture heat above the components and provide cool air below. Available in 3 models; DTS 3241 (NEMA Type 12) for indoor use, DTS 3261 (NEMA Type 3R/4) designed for outdoor use, and the stainless steel DTS 3281 (NEMA Type 4/4x) ideal for washdown applications.

Closed Loop Design
Designed to isolate the external ambient air from the internally conditioned air eliminating the risk of contaminants entering the cabinet.

Thermal Overload Protection
Compressor and fan motors are outfitted with integral temperature switches to shut down the unit in the event of excessive temperature. This increases the operating life of the compressor by preventing thermal overload trips.

High Ambient Performance
The DTS 3000 Series Cooling Units were designed utilizing high temperature compressors and larger condensers. Both the indoor NEMA Type 12 units and outdoor units perform very well in environments that require cooling where the maximum ambient temperature is 131° F.

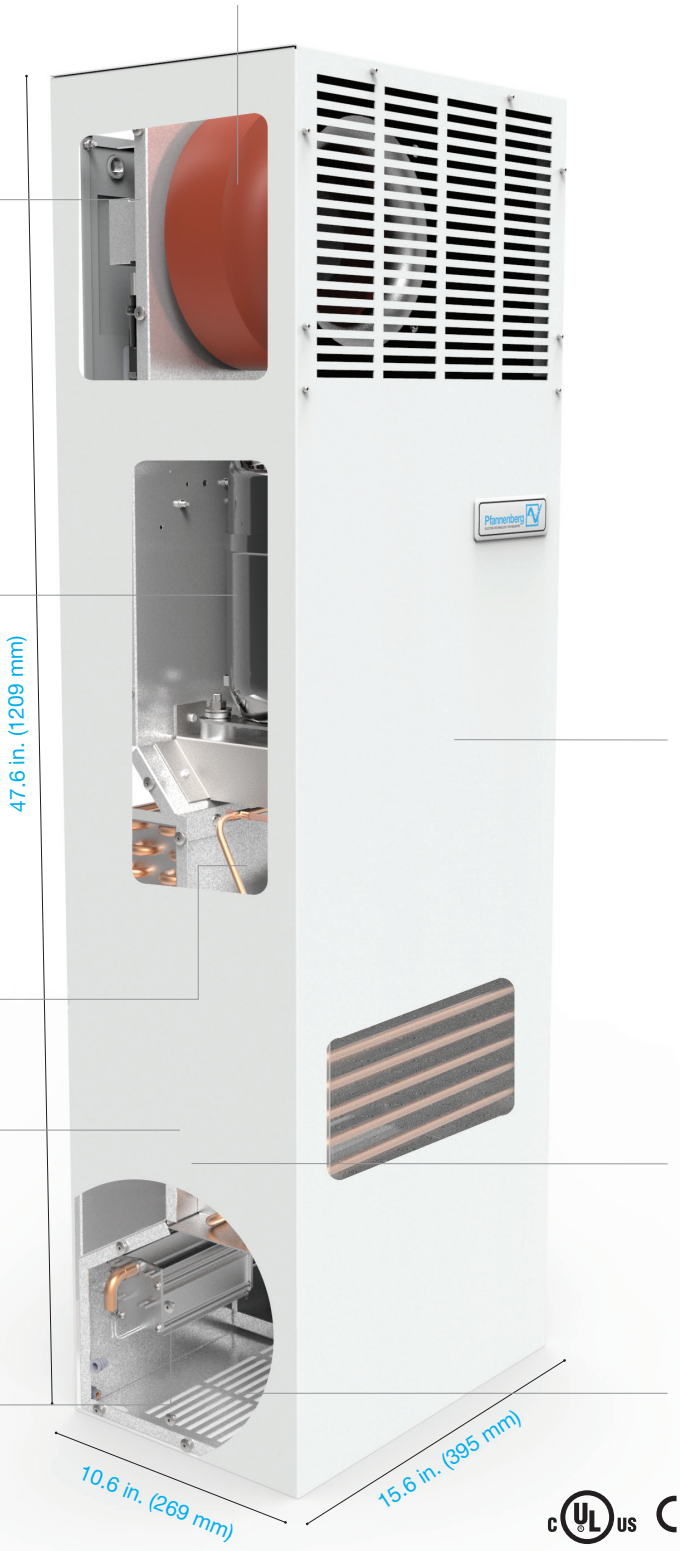
Hermetically Sealed Compressor
The absence of any refrigerant fill valves eliminates leak paths. Recharging is never needed. 100% cooling capacity efficiency is ensured.

Pressure Overload Protection
High pressure cutout switch ensures safety by shutting off the compressor in the event of excessive pressure appearing in the refrigeration circuit.

Thermal Expansion Valve
Regulates the flow of refrigerant based on thermal demand for efficient performance over the entire operating temperature range.

Active Condensate Management
Condensation is a natural by-product of refrigeration. The heated condensate collection pan boils this off thereby eliminating the need for drain tubes and buckets. To conserve power, this heater only activates when necessary.

High Airflow Backward Curve Impeller Fan
Provides high airflow in a long lasting, single bearing design. Outperforms typical two-bearing blowers with nearly twice the lifespan.



ERP Efficiency Certified
As a component of the Kyoto Protocol to reduce carbon monoxide emissions, the European Energy Related Products (ERP) Directive includes an efficiency rating for fans. Pfannenberg proudly utilizes components which adhere to these requirements.

Environmentally Friendly
Utilizes HFC-free R134a refrigerant versus a blended refrigerant for easier service and minimized negative impact to the environment.

Self Protected from Harsh Environments
Our unit is uniquely designed to protect itself in NEMA 3R, 4, and 4X environments. An example of this is the location of our control electronics within our dry, cool interior circuit.

Rugged Design
Powder coated steel or stainless steel cover designed for manufacturing environments. Easily painted to match enclosure or machine.

Maintenance Free, Filterless Design
The wide fin spacing is less susceptible to clogging from dirt buildup which can cause the unit to work harder and hamper efficiency.

Corrosion Protection
Outdoor and washdown units have a special coating on pipes and coils on the ambient side of the unit to provide maximum protection from saltwater, sour gas, and other corrosive substances.

Quiet Operation
Achieved with waste heat exhausted through the bottom.

DTS 32X1 Series (7000 - 8500 Btu/h) Side-Mount Cooling Units

Model Number	Part Number	Voltage (VAC)	Frequency (Hz)	Power Consumption (W)	Nominal (Run) Current* @ 35A/35A °C	Fuse (maximum)** Class CC	Noise Level (according to EN ISO 3741) dB(A)	Weight (without packaging) lb (kg)
DTS 3241 Indoor Rated (NEMA Type 12)	13385744255	115	60	1680	11.6	20	<73	119 (54)
	13385741255	230	50/60	1425	5.6	10	<73	119 (54)
	13385736255	400/460	50/60	1400	2.6	5	<73	135.5 (61)
Design	**Housing:** galvanized sheet steel **Cover:** electrostatically powder coated RAL 7035 (light grey); for ANSI 61 grey use part no. ending in ...251							
DTS 3261 Outdoor Rated (NEMA Type 3R/4)	13385744355	115	60	1680	11.6	20	<73	123.5 (56)
	13385741355	230	50/60	1425	5.6	10	<73	123.5 (56)
	13385736355	400/460	50/60	1400	2.6	5	<73	139 (63)
Design	**Housing:** galvanized sheet steel **Cover:** electrostatically powder coated RAL 7035 (light grey); for ANSI 61 grey use part no. ending in ...351							
DTS 3281 Washdown (NEMA Type 4/4x)	13385744158	115	60	1680	11.6	20	<73	132 (60)
	13385741158	230	50/60	1425	5.6	10	<73	132 (60)
	13385736158	400460	50/60	1400	2.6	5	<73	148 (67)
Design	**Housing:** galvanized sheet steel **Cover:** stainless steel 304							

Additional Data		DTS 3241	DTS 3261	DTS 3281	
Ambient Temperature Range		+ 59 … + 131 / + 15 … + 55	+ 32 … + 131 / + 0 … + 55		°F / °C
Control range (adjustable)	SC	+ 77 … + 113 / + 25 … + 45; factory setting + 95 / + 35			
Refrigerant	type	R134a			
	quantity	700			g
Condensate management		active condensate evaporation system with safety overflow			
Protection system according to NEMA Type		12	3R/4	4/4X	against enclosure when properly installed
		NEMA 1 towards the surroundings when properly installed			
Accessories		For spare part kits and additional accessories visit pgs. 74-75 in this catalog			

* For the MCA (Maximum Current Ampacity) value per UL, please consult product technical datasheets available on our website.
** Suitable for Transformer Inrush Protection for the DTS 3000 units.

For additional technical data, drawings and templates.
www.pfannenbergusa.com

Available Models:

DTS 3241
Indoor Rated
(NEMA Type 12)

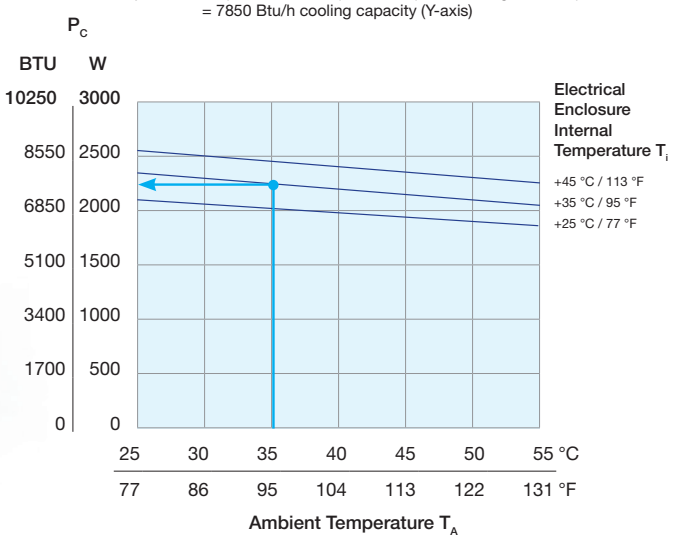
DTS 3261
Outdoor Rated
(NEMA Type 3R/4)

DTS 3281
Washdown
(NEMA Type 4/4x)

Cooling Capacity Performance Curve

How to use this chart

Example: @ 95 °F (ambient, X-axis), @ 95 °F (internal, diagonal lines) = 7850 Btu/h cooling capacity (Y-axis)



Note: Cooling capacity may vary between voltage and configurations.

DTS 32X5 | COOLING UNITS

10000 - 13000 Btu/h

The DTS 32X5 series cooling units are one of our most popular and versatile cooling units. Cutout footprint is compatible with our older 12,000 Btu/h cooling units, allowing for easy upgrade or replacement. Available in 3 models; DTS 3245 (NEMA Type 12) for indoor use, DTS 3265 (NEMA Type 3R/4) designed for outdoor use, and the stainless steel DTS 3285 (NEMA Type 4/4x) designed for washdown applications.

Closed Loop Design
Designed to isolate the external ambient air from the internally conditioned air eliminating the risk of contaminants entering the cabinet.

Thermal Overload Protection
Compressor and fan motors are outfitted with integral temperature switches to shut down the unit in the event of excessive temperature. This increases the operating life of the compressor by preventing thermal overload trips.

High Airflow Backward Curve Impeller Fan
Provides high airflow in a long lasting, single bearing design. Outperforms typical two-bearing blowers with nearly twice the lifespan.

Pluggable power connection
Easily made without opening the chassis.

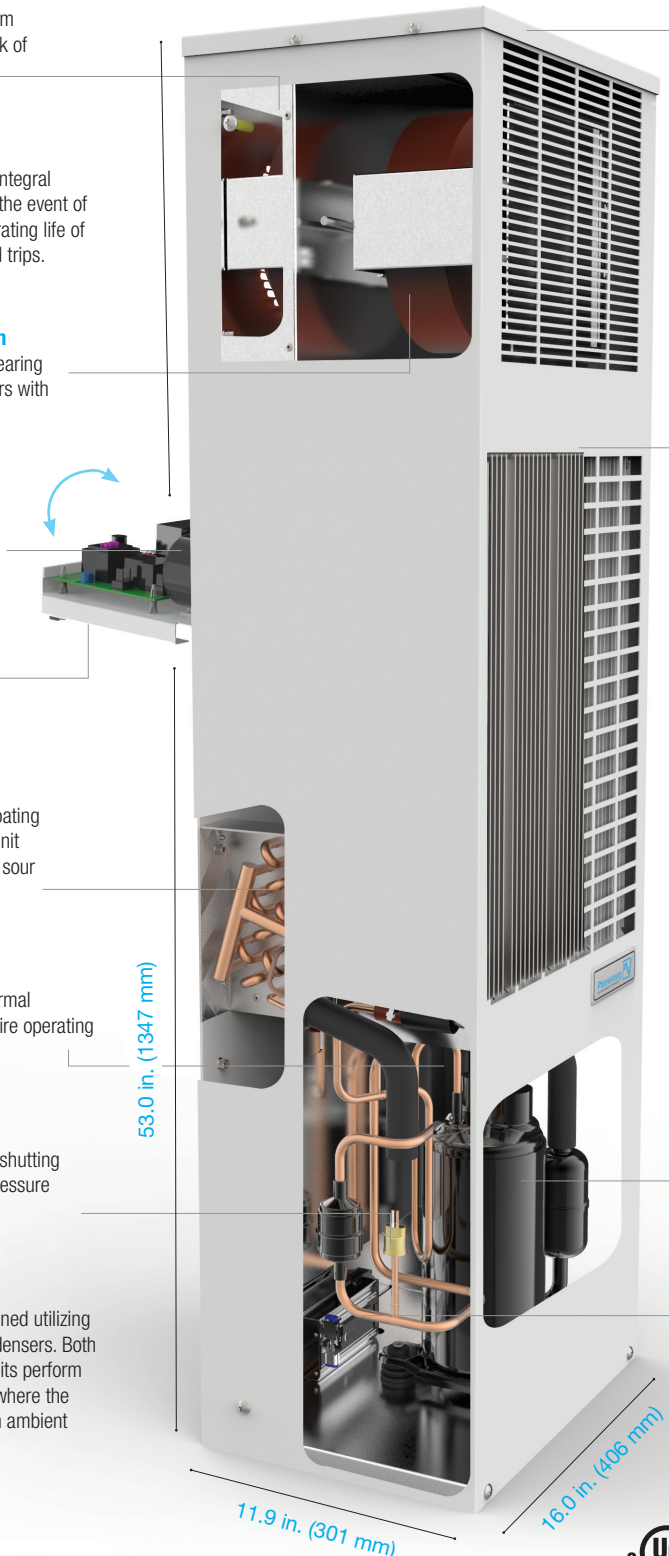
Easy Access Control Panel
Electrical controls are easily accessible with the flip down access panel.

Corrosion Protection
Outdoor and washdown units have a special coating on pipes and coils on the ambient side of the unit to provide maximum protection from saltwater, sour gas, and other corrosive substances.

Thermal Expansion Valve
Regulates the flow of refrigerant based on thermal demand for efficient performance over the entire operating temperature range.

Pressure Overload Protection
High pressure cutout switch ensures safety by shutting off the compressor in the event of excessive pressure appearing in the refrigeration circuit.

High Ambient Performance
The DTS 3000 Series Cooling Units were designed utilizing high temperature compressors and larger condensers. Both the indoor NEMA Type 12 units and outdoor units perform very well in environments that require cooling where the maximum ambient temperature is 131° F. High ambient options are also available to 140° F.



Lifting Lug Ports
Threaded holes accommodate the installation of lifting lugs to facilitate safe installation.

Environmentally Friendly
Utilizes HFC-free R134a refrigerant versus a blended refrigerant for easier service and minimized negative impact to the environment.

Extra Protection from Water
The rain hood is a standard feature for NEMA 3R, 4, and 4X units. This hood provides protection from falling water and direct water sprays.

Rugged Design
Powder coated steel or stainless steel cover designed for manufacturing environments. Easily painted to match enclosure or machine.

ERP Efficiency Certified
As a component of the Kyoto Protocol to reduce carbon monoxide emissions, the European Energy Related Products (ERP) Directive includes an efficiency rating for fans. Pfannenberg proudly utilizes components which adhere to these requirements.

Hermetically Sealed Compressor
The absence of any refrigerant fill valves eliminates leak paths. Recharging is never needed. 100% cooling capacity efficiency is ensured.

Active Condensate Management
Condensation is a natural by-product of refrigeration. The heated condensate collection pan boils this off thereby eliminating the need for drain tubes and buckets. To conserve power, this heater only activates when necessary.

DTS 32X5 Series (10000 - 13000 Btu/h) Side-Mount Cooling Units

Model Number	Part Number	Voltage (VAC)	Frequency (Hz)	Power Consumption (W)	Nominal (Run) Current* @ 35A/35A °C	Fuse (maximum)** Class CC	Noise Level (according to EN ISO 3741) dB(A)	Weight (without packaging) lb (kg)
DTS 3245 Indoor Rated (NEMA Type 12)	13383844255	115	60	1600	13.6	25	<73	150 (68)
	13383839255	230	50/60	1600	7.03	12	<73	150 (68)
	13383836255	400/460	50/60	1700	3.14	6	<73	150 (68)
Design	**Housing:** galvanized sheet steel **Cover:** electrostatically powder coated RAL 7035 (light grey); for ANSI 61 grey use part no. ending in ...251							
DTS 3265 Outdoor Rated (NEMA Type 3R/4)	13383844355	115	60	1600	13.6	25	<73	150 (68)
	13383839355	230	50/60	1600	7.03	12	<73	150 (68)
	13383836355	400/460	50/60	1700	3.14	6	<73	150 (68)
Design	**Housing:** galvanized sheet steel **Cover:** electrostatically powder coated RAL 7035 (light grey); for ANSI 61 grey use part no. ending in ...351							
DTS 3285 Washdown (NEMA Type 4/4x)	13383844158	115	60	1600	13.6	25	<73	150 (68)
	13383839158	230	50/60	1600	7.03	12	<73	150 (68)
	13383836158	400/460	50/60	1700	3.14	6	<73	150 (68)
Design	**Housing:** galvanized sheet steel **Cover:** stainless steel 304							

Additional Data		DTS 3245	DTS 3265	DTS 3285	
Ambient Temperature Range		+ 59 ... + 131 / + 15 ... + 55	+ 32 ... + 131 / 0 ... + 55		°F / °C
Control range (adjustable)	SC	+ 77 ... + 113 / + 25 ... + 45; factory setting + 95 / + 35			
Refrigerant	type	R134a			
	quantity	1200			g
Condensate management		active condensate evaporation system with safety overflow			
Protection system according to NEMA Type		12	3R/4	4/4X	against enclosure when properly installed
		NEMA 1 towards the surroundings when properly installed			
Accessories		For spare part kits and additional accessories visit pgs. 74-75 in this catalog			

* For the MCA (Maximum Current Ampacity) value per UL, please consult product technical datasheets available on our website.

** Suitable for Transformer Inrush Protection for the DTS 3000 units.

For additional technical data, drawings and templates.
www.pfannenbergusa.com

Available Models:

DTS 3245
Indoor Rated
(NEMA Type 12)

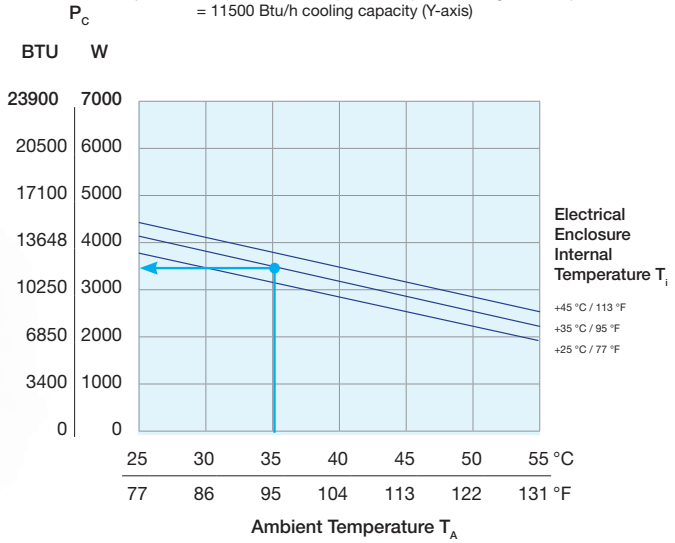
DTS 3265
Outdoor Rated
(NEMA Type 3R/4)

DTS 3285
Washdown
(NEMA Type 4/4x)

Cooling Capacity Performance Curve

How to use this chart

Example: @ 95 °F (ambient, X-axis), @ 95 °F (internal, diagonal lines) = 11500 Btu/h cooling capacity (Y-axis)



Note: Cooling capacity may vary between voltage and configurations.

DTS 34X1C | COOLING UNITS

15000 - 21000 Btu/h

The DTS 34X1C and 36X1C series provides the highest cooling capacity in the smallest footprint possible. DTS 34X1C provides 1.5ton and DTS 36X1C provides 2ton of cooling capacity both in the same small footprint. Available for indoor use (Type 12), outdoor environment (Type 3R/4), and Stainless Steel Washdown application (Type 4/4x)

Closed Loop Design
Designed to isolate the external ambient air from the internally conditioned air eliminating the risk of contaminants entering the cabinet.

Service Friendly Electric Panel
Flip down hinged design to allow easy asses to electrical controls. Plug-n-play power connection for easy wiring (Female connector provided).

Hermetically Sealed Reciprocating Compressor
The absence of any refrigerant fill valves eliminates leak paths. Recharging is never needed. Reciprocating Compressor eliminate phase mis-wiring

Active Condensate Management
Condensation is a natural byproduct of refrigeration. The heated condensate collection pan boils this off thereby eliminating the need for drain tubes and buckets. To conserve power, this heater only activates when necessary.

High Airflow Backward Curve Impeller Fan
Provides high airflow preventing hotspot especially in populated or multiple bay enclosures. Best in Class fan providing long service life.

Rugged Design for All Environment
Powder coated or stainless-steel cover designed for harsh manufacturing environments. Additional rainhood cover for Outdoor (Type 3R/4) and Washdown (Type 4/4X) design

Efficient and Extended Life Design
Zinc coated micro-channel design provides up to 40% increased in heat rejection boosting the overall cooling performance. The coating provides additional protection towards corrosive environment prolonging the service life

Pressure and Thermal Overload Protection
High pressure cutout and thermal switches ensures safety by shutting off the compressor and fans in unforeseen event of excessive pressure or heat to protect unit from costly repair

Easy to see status light
Highly visible status indicator light provides easy visual indication on the running status of the cooling unit. Alerting maintenance team of any error when happened.

DTS 34X1C Series (15000-21000 Btu/h) Side-Mount Cooling Units

Model Number	Part Number	Voltage (VAC)	Frequency (Hz)	Power Consumption (W)	Nominal (Run) Current* @ 35A/35A °C	Fuse (maximum)** Class CC	Noise Level (according to EN ISO 3741) dB(A)	Weight (without packaging) lb (kg)
DTS 3441C Indoor Rated (NEMA Type 12)	13384139255	230	60	2674	11.82	20	81	201.5 (91.4)
	13384136255	460	50/60	2316	4.06	7	81	201.5 (91.4)
Design	**Housing:** galvanized sheet steel **Cover:** electrostatically powder coated RAL 7035 (light grey); for ANSI 61 grey use part no. ending in ...251							
DTS 3461C Outdoor Rated (NEMA Type 3R/4)	13384139355	230	60	2450	11.82	20	81	210.1 (95.3)
	13384136355	460	50/60	2431	4.06	7	81	210.1 (95.3)
Design	**Housing:** galvanized sheet steel **Cover:** electrostatically powder coated RAL 7035 (light grey); for ANSI 61 grey use part no. ending in ...351							
DTS 3481C Washdown (NEMA Type 4/4x)	13384139158	230	60	2450	11.82	20	81	210.1 (95.3)
	13384136158	460	50/60	2431	4.06	7	81	210.1 (95.3)
Design	**Housing:** sheet steel **Cover:** stainless steel 304							

Additional Data		DTS 3441C	DTS 3461C	DTS 3481C	
Ambient Temperature Range		+ 46 … + 131 / + 8 … + 55	+ 25 … + 131 / - 4 … + 55		°F / °C
Control range (adjustable)	SC	+ 77 … + 113 / + 25 … + 45; factory setting + 95 / + 35			
Refrigerant	type	R134a			
	quantity	450			g
Condensate management		integrated condensate management system with condensate drain			
Protection system according to NEMA Type		12	3R/4	4/4X	against enclosure when properly installed
		NEMA 1 towards the surroundings when properly installed			
Accessories		For spare part kits and additional accessories visit pgs. 74-75 in this catalog			

* For the MCA (Maximum Current Ampacity) value per UL, please consult product technical datasheets available on our website.

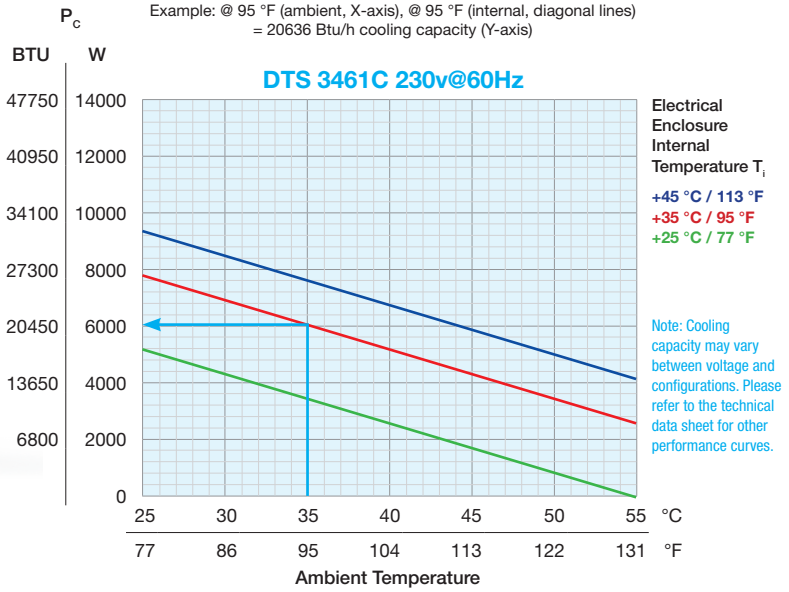
For additional technical data, drawings and templates.
www.pfannenbergusa.com

Available Models:

DTS 3441C Indoor Rated (NEMA Type 12)
DTS 3461C Outdoor Rated (NEMA Type 3R/4)
DTS 3481C Washdown (NEMA Type 4/4x)

Cooling Capacity Performance Curve

How to use this chart
Example: @ 95 °F (ambient, X-axis), @ 95 °F (internal, diagonal lines) = 20636 Btu/h cooling capacity (Y-axis)



Note: Cooling capacity may vary between voltage and configurations. Please refer to the technical data sheet for other performance curves.

DTS 36X1C | COOLING UNITS

21000 - 29000 Btu/h

The DTS 34X1C and 36X1C series provides the highest cooling capacity in the smallest footprint possible. DTS 34X1C provides 1.5ton and DTS 36X1C provides 2ton of cooling capacity both in the same small footprint. Available for indoor use (Type 12), outdoor environment (Type 3R/4), and Stainless Steel Washdown application (Type 4/4x)

Closed Loop Design
Designed to isolate the external ambient air from the internally conditioned air eliminating the risk of contaminants entering the cabinet.

Service Friendly Electric Panel
Flip down hinged design to allow easy asses to electrical controls. Plug-n-play power connection for easy wiring (Female connector provided).

Hermetically Sealed Reciprocating Compressor
The absence of any refrigerant fill valves eliminates leak paths. Recharging is never needed. Reciprocating Compressor eliminate phase mis-wiring

Active Condensate Management
Condensation is a natural byproduct of refrigeration. The heated condensate collection pan boils this off thereby eliminating the need for drain tubes and buckets. To conserve power, this heater only activates when necessary.

High Airflow Backward Curve Impeller Fan
Provides high airflow preventing hotspot especially in populated or multiple bay enclosures. Best in Class fan providing long service life.

Rugged Design for All Environment
Powder coated or stainless-steel cover designed for harsh manufacturing environments. Additional rainhood cover for Outdoor (Type 3R/4) and Washdown (Type 4/4X) design

Efficient and Extended Life Design
Zinc coated micro-channel design provides up to 40% increased in heat rejection boosting the overall cooling performance. The coating provides additional protection towards corrosive environment prolonging the service life

Pressure and Thermal Overload Protection
High pressure cutout and thermal switches ensures safety by shutting off the compressor and fans in unforeseen event of excessive pressure or heat to protect unit from costly repair

Easy to see status light
Highly visible status indicator light provides easy visual indication on the running status of the cooling unit. Alerting maintenance team of any error when happened.

DTS 36X1C Series (21000-29000 Btu/h) Side-Mount Cooling Units

Model Number	Part Number	Voltage (VAC)	Frequency (Hz)	Power Consumption (W)	Nominal (Run) Current* @ 35A/35A °C	Fuse (maximum)** Class CC	Noise Level (according to EN ISO 3741) dB(A)	Weight (without packaging) lb (kg)
DTS 3641C Indoor Rated (NEMA Type 12)	13384039255	230	60	3205	16.06	30	81	226.2 (102.6)
	13384036255	460	50/60	3843	5.18	10	81	226.2 (102.6)
Design	**Housing:** galvanized sheet steel **Cover:** electrostatically powder coated RAL 7035 (light grey); for ANSI 61 grey use part no. ending in ...251							
DTS 3661C Outdoor Rated (NEMA Type 3R/4)	13384039355	230	60	3678	16.06	30	81	234.8 (106.5)
	13384036355	460	50/60	1769	5.18	10	81	234.8 (106.5)
Design	**Housing:** galvanized sheet steel **Cover:** electrostatically powder coated RAL 7035 (light grey); for ANSI 61 grey use part no. ending in ...351							
DTS 3681C Washdown (NEMA Type 4/4x)	13384039158	230	60	3678	16.06	30	81	234.8 (106.5)
	13384036158	460	50/60	1769	5.18	10	81	234.8 (106.5)
Design	**Housing:** sheet steel **Cover:** stainless steel 304							

Additional Data		DTS 3641C	DTS 3661C	DTS 3681C	
Ambient Temperature Range		+ 46 … + 131 / + 8 … + 55	+ 25 … + 131 / - 4 … + 55		°F / °C
Control range (adjustable)	SC	+ 77 … + 113 / + 25 … + 45; factory setting + 95 / + 35			
Refrigerant	type	R134a			
	quantity	450			g
Condensate management		integrated condensate management system with condensate drain			
Protection system according to NEMA Type		12	3R/4	4/4X	against enclosure when properly installed
		NEMA 1 towards the surroundings when properly installed			
Accessories		For spare part kits and additional accessories visit pgs. 74-75 in this catalog			

* For the MCA (Maximum Current Ampacity) value per UL, please consult product technical datasheets available on our website.

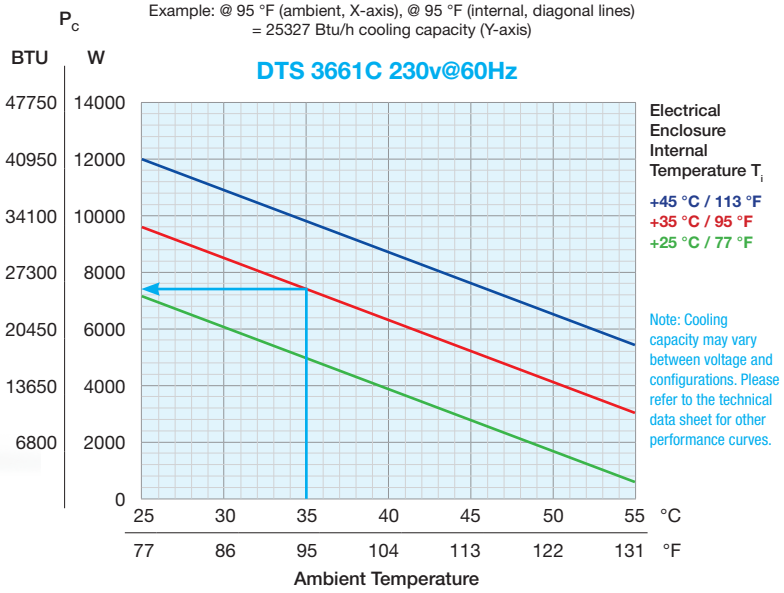
For additional technical data, drawings and templates.
www.pfannenbergusa.com

Available Models:

DTS 3641C Indoor Rated (NEMA Type 12)
DTS 3661C Outdoor Rated (NEMA Type 3R/4)
DTS 3681C Washdown (NEMA Type 4/4x)

Cooling Capacity Performance Curve

How to use this chart
Example: @ 95 °F (ambient, X-axis), @ 95 °F (internal, diagonal lines) = 25327 Btu/h cooling capacity (Y-axis)



ECOOL COOLING UNITS

OEMs know: Looking towards the future, engineering processes will demand new and better uses of technology. Optimization is needed – with solutions that combine maximum performance, environmental friendliness and maximum cost efficiency. Our ECOOL technology sets this new standard.

ECOOL is the most efficient solution.

Raising productivity, reducing CO2 emissions and cutting costs – Pfannenberg is aware of the challenges companies are facing today. We offer a solution: ECOOL technology. Developed with the aim of maximum cost efficiency coupled with maximum performance, ECOOL technology represents a new standard for cost and energy savings in the thermal management of electrical enclosures. The result: **it enables annual savings of over 35 % in energy costs alone.**

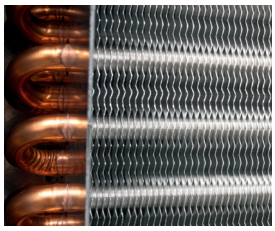
Produced out of rugged sheet metal, Pfannenberg's cooling units are extremely resilient and long-lasting in test industrial operating conditions. Depending on requirements, they are available for traditional mounting on the door or side, for partially recessed door or side mounting and the space-saving top-mounted position. Colors can easily be integrated as well because the covers can be painted or powder coated to suit the particular industrial design.

The ECOOL series also set records in terms of ease of assembly and maintenance – which leads to more cost benefits.

Easy Handling: Service-friendly design reduces routine costs.

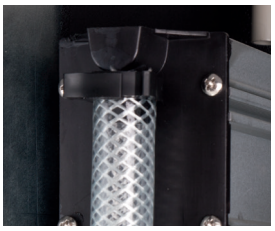
Thought-out solutions for installation and service: Pfannenberg's ECOOL series takes excellent accessibility and simple maintenance into consideration.

- Large condenser fin spacing allow for longer maintenance periods, even without an additional Nano coating.
- One mounting cut-out for 5 different performances, 1,000–4,000 W.
- Mounting possible by 1 person in a few minutes.
- Simple accessibility to all the relevant components.
- Fast component replacement.
- Integration in established network possible.
- Versatile voltage supply of 380–460 V via built-in transformer.
- Integrated condensate evaporation system.



Large fin spacing

Simple installation



Condensate evaporate system

Time-saving

Tool-free patented mounting design allows for quick and efficient assembly that considerably reduces installation costs.

Simple installation

Pfannenberg offers cooling units with the world's largest possible cut-out compatibility providing unit replacement with the least possible installation work. Intelligent mounting systems minimize work during unit installation and replacement.

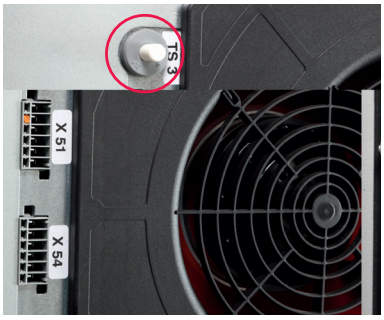
Advantages of the ECOOL Cooling Unit Series.

New Filter Adapter:

- Optional adapter for multiple use and all filter inserts.
- Fluted filter inserts.
- Patented fluted filter mats extend the service intervals by 300%.
- Tool-less installation and tool-less filter replacement.
- Filter replacement in less than one minute.
- Filter adapter available in several colors.

Controlled Energy Efficiency:

- Pfannenberg "Multi Controller" (MC) has now been upgraded with the energy savings mode (ESM) as a standard feature (DTI/DTS 6000 series).
- Internal fan switches off when no temperature increase is registered; condensate evaporator will then be deactivated.
- Cooling mode starts automatically upon exceeding the required cabinet temperature.
- Additional temperature probe for precise measurement of the internal cabinet temperature and to ensure correct operation of the energy savings mode.
- No intermediate start-up of the internal fan necessary for temperature monitoring of the cabinet.
- Fan's length of life is significantly longer.



DTI 6000 C | RECESSED COOLING UNITS

3000 - 6000 Btu/h

ECOOL

The New DTI 6000C series compact cooling units are easily serviceable and easy to install. These units also feature the best energy efficiency on the market when compared against similar product. These cooling units are Ideal for mounting on a cabinet door and are partially recessed for space restricted installations.

Partially Recessed
For space restricted installations, ideal for door mount.

Thermal Overload Protection
Compressor and fan motors are outfitted with integral temperature switches to shut down the unit in the event of excessive temperature.

Pressure Overload Protection
High pressure cutout switch ensures safety by shutting off the compressor in the event of excessive pressure appearing in the refrigeration circuit.

Closed Loop Design
Designed to isolate the external ambient air from the internally conditioned air eliminating the risk of contaminants entering the cabinet.

Thermal Expansion Valve
Regulates the flow of refrigerant based on thermal demand for efficient performance over the entire operating temperature range.

Efficient Circulation
Large distance between intake and exhaust vents for efficient air circulation and elimination of hot spots.

Environmentally Friendly
Utilizes HFC-free R134a refrigerant versus a blended refrigerant for easier service and minimized negative impact to the environment.

Energy Efficient Hibernation Mode
When cooling isn't necessary due to equipment shutdown or cold weather conditions, the unit conserves energy by turning fans off - except for periodic cycling for circulating air within the enclosure.

High Airflow Backward Curve Impeller Fan
Provides high airflow in a long lasting, single bearing design. Outperforms typical two-bearing blowers with nearly twice the lifespan.

Phase Protection
Three-phase 400/460 VAC powered units are protected from phase mis-wiring.

ERP Efficiency Certified
As a component of the Kyoto Protocol to reduce carbon monoxide emissions, the European Energy Related Products (ERP) Directive includes an efficiency rating for fans. Pfannenberg proudly utilizes components which adhere to these requirements for up to 43% energy savings and operating costs reduction.

Maintenance Free, Filterless Design
The wide fin spacing is less susceptible to clogging from dirt buildup which can cause the unit to work harder and hamper efficiency.

External Display
For visual temperature monitoring.

Easy Installation and Maintenance
Tool-free spring plate design keeps the unit safely in place and allows mounting by 1 person in less than 3 minutes with 55% lower mounting costs. Direct access to the PCB and the fans means 80% shorter repair times.

Hermetically Sealed Compressor
The absence of any refrigerant fill valves eliminates leak paths. Recharging is never needed. 100% cooling capacity efficiency is ensured.

Active Condensate Management
Condensation is a natural by-product of refrigeration. The heated condensate collection pan boils this off thereby eliminating the need for drain tubes and buckets. To conserve power, this heater only activates when necessary.

DTI 6000 C Series (3000 - 6000 Btu/h) Recessed Cooling Units

Model Number	Part Number	Voltage (VAC)	Frequency (Hz)	Power Consumption (W)	Nominal (Run) Current @ 35A/35A °C	Fuse (maximum) Class CC	Noise Level (according to EN ISO 3741) dB(A)	Weight (without packaging) lb (kg)
DTI 6201C	13895221055	230	50/60	445 / 560	2.4 / 2.9	6	<62	88 (40)
	13895229055	400/460	50/60	480 / 570	1.8 / 2.1	10	<62	99 (45)
Design	**Housing:** galvanized sheet steel **Cover:** electrostatically powder coated RAL 7035 (light grey);							
DTI 6301C	13895321055	230	60	705 / 820	5 / 5.2	6	<62	88 (40)
	13895329055	400/460	50/60	770 / 820	3.5 / 3.3	10	<62	99 (45)
Design	**Housing:** galvanized sheet steel **Cover:** electrostatically powder coated RAL 7035 (light grey);							

Additional Data		DTI 6201C	DTI 6301C	
Ambient Temperature Range		+ 59 … + 131 / + 15 … + 55		°F / °C
Control range (adjustable)	SC	+ 77 … + 113 / + 25 … + 45; factory setting + 95 / + 35		
Refrigerant	type	R134a		
	quantity	580		g
Condensate management		integrated condensate evaporation system with safety overflow		
Protection system according to EN 60529	IP54	towards the electrical enclosure if used as intended by the manufacturer		
	IP34	towards the surroundings if used as intended by the manufacturer		
Accessories		Consult Factory		

For additional technical data, drawings and templates.
www.pfannenbergusa.com

Available Models:

DTI 6201C
Indoor Rated

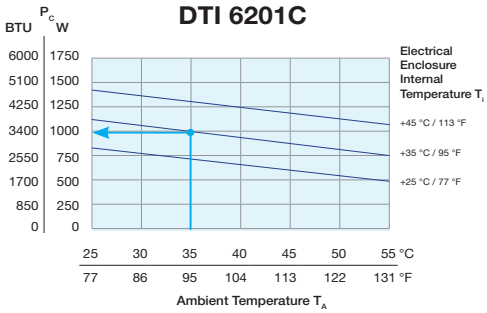
DTI 6301C
Indoor Rated

Cooling Capacity Performance Curves

How to use these charts

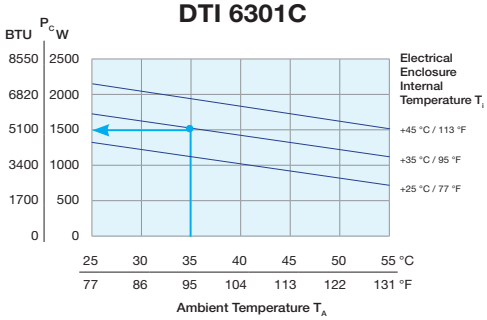
Example: @ 95 °F (ambient, X-axis), @ 95 °F (internal, diagonal lines)
DTI 6201C = 3400 Btu/h cooling capacity (Y-axis)
DTI 6301C = 5100 Btu/h cooling capacity (Y-axis)

DTI 6201C



Note: Cooling capacity may vary between voltage and configurations.

DTI 6301C



Note: Cooling capacity may vary between voltage and configurations.

DTI 6201- 6301 | RECESSED COOLING UNITS

3000 - 6000 Btu/h

ECOOL

The DTI 6201 - 6301 series cooling units utilize a long internal air path to capture heat above the components and provide cool air below. These cooling units are Ideal for mounting on a cabinet door and are partially recessed for space restricted installations.

Partially Recessed
For space restricted installations, ideal for door mount.

Easy Installation and Maintenance
Tool-free spring plate design keeps the unit safely in place and allows mounting by 1 person in less than 3 minutes with 55% lower mounting costs. Direct access to the PCB and the fans means 80% shorter repair times.

Thermal Overload Protection
Compressor and fan motors are outfitted with integral temperature switches to shut down the unit in the event of excessive temperature.

Pressure Overload Protection
High pressure cutout switch ensures safety by shutting off the compressor in the event of excessive pressure appearing in the refrigeration circuit.

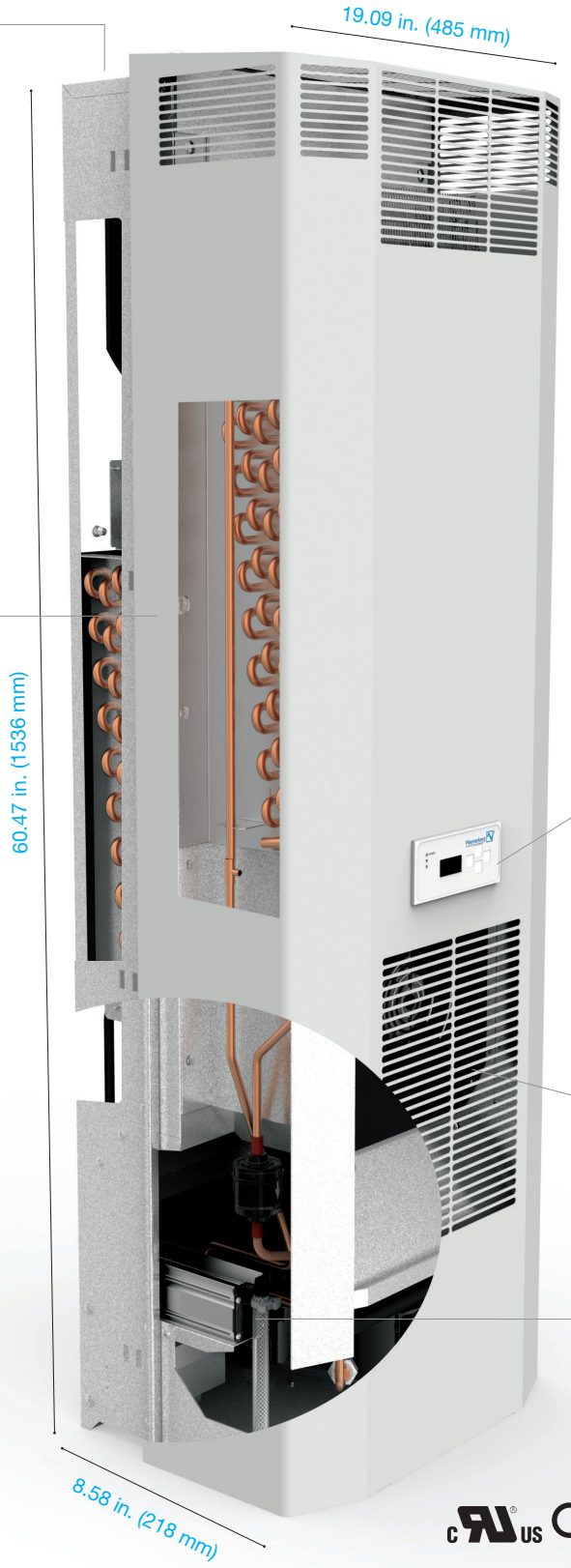
Closed Loop Design
Designed to isolate the external ambient air from the internally conditioned air eliminating the risk of contaminants entering the cabinet.

Thermal Expansion Valve
Regulates the flow of refrigerant based on thermal demand for efficient performance over the entire operating temperature range.

Efficient Circulation
Large distance between intake and exhaust vents for efficient air circulation and elimination of hot spots.

Environmentally Friendly
Utilizes HFC-free R134a refrigerant versus a blended refrigerant for easier service and minimized negative impact to the environment.

Energy Efficient Hibernation Mode
When cooling isn't necessary due to equipment shutdown or cold weather conditions, the unit conserves energy by turning fans off - except for periodic cycling for circulating air within the enclosure.



Phase Protection
Three-phase 400/460 VAC powered units are protected from phase mis-wiring.

ERP Efficiency Certified
As a component of the Kyoto Protocol to reduce carbon monoxide emissions, the European Energy Related Products (ERP) Directive includes an efficiency rating for fans. Pfannenberg proudly utilizes components which adhere to these requirements for up to 43% energy savings and operating costs reduction.

Maintenance Free, Filterless Design
The wide fin spacing is less susceptible to clogging from dirt buildup which can cause the unit to work harder and hamper efficiency.

External Display
For visual temperature monitoring.

High Airflow Backward Curve Impeller Fan
Provides high airflow in a long lasting, single bearing design. Outperforms typical two-bearing blowers with nearly twice the lifespan.

Hermetically Sealed Compressor
The absence of any refrigerant fill valves eliminates leak paths. Recharging is never needed. 100% cooling capacity efficiency is ensured.

Active Condensate Management
Condensation is a natural by-product of refrigeration. The heated condensate collection pan boils this off thereby eliminating the need for drain tubes and buckets.
To conserve power, this heater only activates when necessary.

c UL us CE

DTI 6201 - 6301 Series (3000 - 6000 Btu/h) Recessed Cooling Units

Model Number	Part Number	Voltage (VAC)	Frequency (Hz)	Power Consumption (W)	Nominal (Run) Current @ 35A/35A °C	Fuse (maximum) Class CC	Noise Level (according to EN ISO 3741) dB(A)	Weight (without packaging) lb (kg)
DTI 6201	13896221055	230	50/60	454 / 567	3.08 / 3.65	16	<62	112 (51)
	13896229055	400/460	50/60	490 / 570	2.33 / 2.54	4	<62	128 (58)
Design	**Housing:** galvanized sheet steel **Cover:** electrostatically powder coated RAL 7035 (light grey);							
DTI 6301	13896321055	230	60	727 / 868	5.08 / 5.17	16	<62	119 (54)
	13896329055	400/460	50/60	786 / 863	3.65 / 3.35	4	<62	132 (60)
Design	**Housing:** galvanized sheet steel **Cover:** electrostatically powder coated RAL 7035 (light grey);							

Additional Data		DTI 6201	DTI 6301	
Ambient Temperature Range		+ 59 … + 131 / + 15 … + 55		°F / °C
Control range (adjustable)	SC	+ 77 … + 113 / + 25 … + 45; factory setting + 95 / + 35		
Refrigerant	type	R134a		
	quantity	600		g
Condensate management		integrated condensate evaporation system with safety overflow		
Protection system according to EN 60529	IP54	towards the electrical enclosure if used as intended by the manufacturer		
	IP34	towards the surroundings if used as intended by the manufacturer		
Accessories		Consult Factory		

For additional technical data, drawings and templates.
www.pfannenbergusa.com

Available Models:

DTI 6201
Indoor Rated

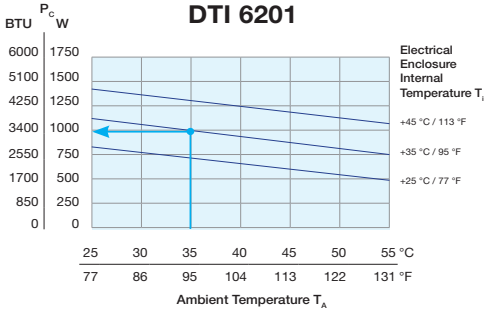
DTI 6301
Indoor Rated

Cooling Capacity Performance Curves

How to use these charts

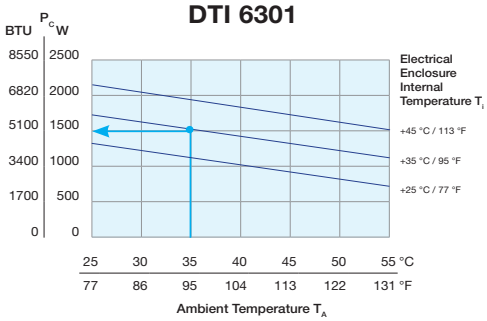
Example: @ 95 °F (ambient, X-axis), @ 95 °F (internal, diagonal lines)
DTI 6201 = 3400 Btu/h cooling capacity (Y-axis)
DTI 6301 = 5100 Btu/h cooling capacity (Y-axis)

DTI 6201



Note: Cooling capacity may vary between voltage and configurations.

DTI 6301



Note: Cooling capacity may vary between voltage and configurations.

DTI 6401- 6501 | RECESSED COOLING UNITS

7000 - 11000 Btu/h

ECOOL

The DTI 6401 - 6501 series cooling units have about 2x greater cooling capactity than the DTI 6202/6301. These cooling units also utilize a long internal air path to capture heat above the components and provide cool air below. These units are Ideal for mounting on a cabinet door and are partially recessed for space restricted installations.

Partially Recessed
For space restricted installations, ideal for door mount.

Easy Installation and Maintenance
Tool-free spring plate design keeps the unit safely in place and allows mounting by 1 person in less than 3 minutes with 55% lower mounting costs. Direct access to the PCB and the fans means 80% shorter repair times.

Thermal Overload Protection
Compressor and fan motors are outfitted with integral temperature switches to shut down the unit in the event of excessive temperature.

Pressure Overload Protection
High pressure cutout switch ensures safety by shutting off the compressor in the event of excessive pressure appearing in the refrigeration circuit.

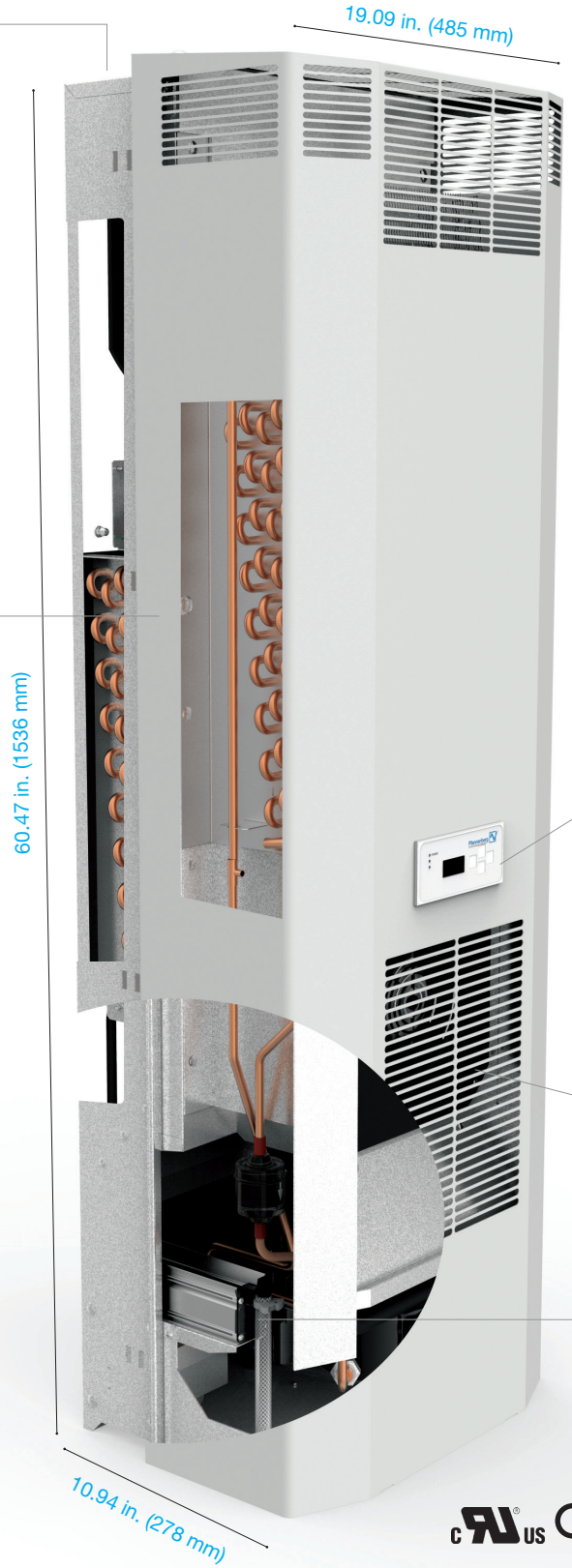
Closed Loop Design
Designed to isolate the external ambient air from the internally conditioned air eliminating the risk of contaminants entering the cabinet.

Thermal Expansion Valve
Regulates the flow of refrigerant based on thermal demand for efficient performance over the entire operating temperature range.

Efficient Circulation
Large distance between intake and exhaust vents for efficient air circulation and elimination of hot spots.

Environmentally Friendly
Utilizes HFC-free R134a refrigerant versus a blended refrigerant for easier service and minimized negative impact to the environment.

Energy Efficient Hibernation Mode
When cooling isn't necessary due to equipment shutdown or cold weather conditions, the unit conserves energy by turning fans off - except for periodic cycling for circulating air within the enclosure.



Phase Protection
Three-phase 400/460 VAC powered units are protected from phase mis-wiring.

ERP Efficiency Certified
As a component of the Kyoto Protocol to reduce carbon monoxide emissions, the European Energy Related Products (ERP) Directive includes an efficiency rating for fans. Pfannenberg proudly utilizes components which adhere to these requirements for up to 43% energy savings and operating costs reduction.

Maintenance Free, Filterless Design
The wide fin spacing is less susceptible to clogging from dirt buildup which can cause the unit to work harder and hamper efficiency.

External Display
For visual temperature monitoring.

High Airflow Backward Curve Impeller Fan
Provides high airflow in a long lasting, single bearing design. Outperforms typical two-bearing blowers with nearly twice the lifespan.

Hermetically Sealed Compressor
The absence of any refrigerant fill valves eliminates leak paths. Recharging is never needed. 100% cooling capacity efficiency is ensured.

Active Condensate Management
Condensation is a natural by-product of refrigeration. The heated condensate collection pan boils this off thereby eliminating the need for drain tubes and buckets.
To conserve power, this heater only activates when necessary.

c UL us CE

DTI 6401 - 6501 Series (7000 - 11000 Btu/h) Recessed Cooling Units

Model Number	Part Number	Voltage (VAC)	Frequency (Hz)	Power Consumption (W)	Nominal (Run) Current @ 35A/35A °C	Fuse (maximum) Class CC	Noise Level (according to EN ISO 3741) dB(A)	Weight (without packaging) lb (kg)
DTI 6401	13896422055	400/460	50/60	735 / 908	2.8 / 2.6	16	<65	139 (63)
Design	**Housing:** galvanized sheet steel **Cover:** electrostatically powder coated RAL 7035 (light grey);							
DTI 6501	13896522055	400/460	50/60	1048 / 1247	3.3 / 3	16	<65	148 (67)
Design	**Housing:** galvanized sheet steel **Cover:** electrostatically powder coated RAL 7035 (light grey);							

Additional Data		DTI 6401	DTI 6501	
Ambient Temperature Range		+ 59 … + 131 / + 15 … + 55		°F / °C
Control range (adjustable)	SC	+ 77 … + 113 / + 25 … + 45; factory setting + 95 / + 35		
Refrigerant	type	R134a		
	quantity	1400		g
Condensate management		integrated condensate evaporation system with safety overflow		
Protection system according to EN 60529	IP54	towards the electrical enclosure if used as intended by the manufacturer		
	IP34	towards the surroundings if used as intended by the manufacturer		
Accessories		Consult Factory		

For additional technical data, drawings and templates.
www.pfannenbergusa.com

Available Models:

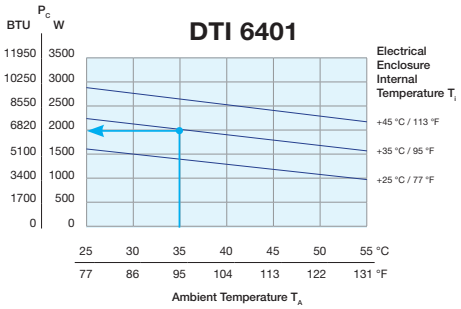
DTI 6401
Indoor Rated

DTI 6501
Indoor Rated

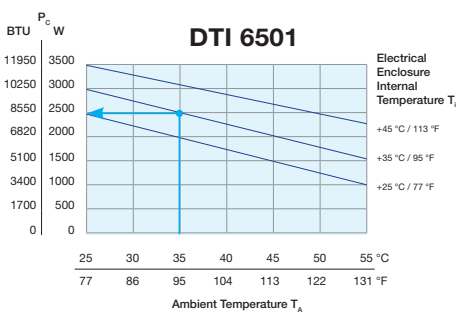
Cooling Capacity Performance Curves

How to use these charts

Example: @ 95 °F (ambient, X-axis), @ 95 °F (internal, diagonal lines)
DTI 6401 = 6820 Btu/h cooling capacity (Y-axis)
DTI 6501 = 8550 Btu/h cooling capacity (Y-axis)



Note: Cooling capacity may vary between voltage and configurations.



DTI 6801 | RECESSED COOLING UNITS

13000 - 16000 Btu/h

ECOOL

The DTI 6801 series cooling units offer the greatest cooling capacity of our DTI Series Recessed Cooling Units. These cooling units also utilize a long internal air path to capture heat above the components and provide cool air below. These units are Ideal for mounting on a cabinet door and are partially recessed for space restricted installations.

Partially Recessed
For space restricted installations, ideal for door mount.

Easy Installation and Maintenance
Tool-free spring plate design keeps the unit safely in place and allows mounting by 1 person in less than 3 minutes with 55% lower mounting costs. Direct access to the PCB and the fans means 80% shorter repair times.

Thermal Overload Protection
Compressor and fan motors are outfitted with integral temperature switches to shut down the unit in the event of excessive temperature.

Pressure Overload Protection
High pressure cutout switch ensures safety by shutting off the compressor in the event of excessive pressure appearing in the refrigeration circuit.

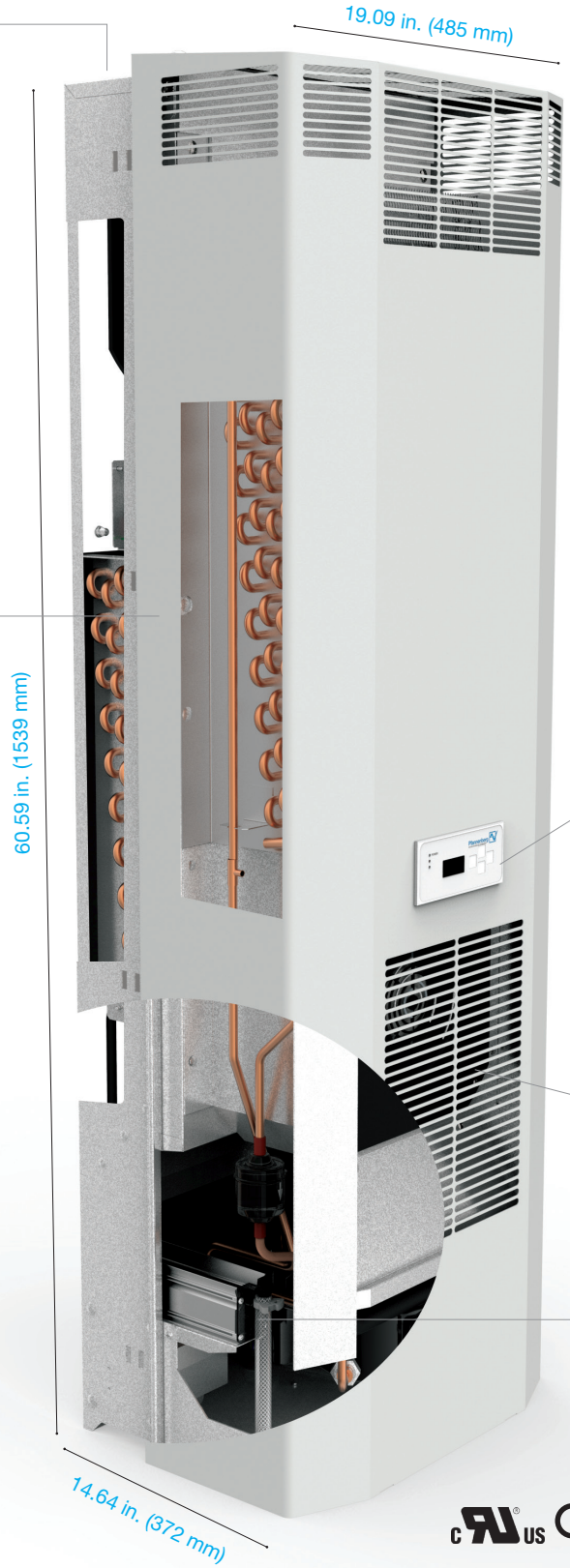
Closed Loop Design
Designed to isolate the external ambient air from the internally conditioned air eliminating the risk of contaminants entering the cabinet.

Thermal Expansion Valve
Regulates the flow of refrigerant based on thermal demand for efficient performance over the entire operating temperature range.

Efficient Circulation
Large distance between intake and exhaust vents for efficient air circulation and elimination of hot spots.

Environmentally Friendly
Utilizes HFC-free R134a refrigerant versus a blended refrigerant for easier service and minimized negative impact to the environment.

Energy Efficient Hibernation Mode
When cooling isn't necessary due to equipment shutdown or cold weather conditions, the unit conserves energy by turning fans off - except for periodic cycling for circulating air within the enclosure.



Phase Protection
Three-phase 400/460 VAC powered units are protected from phase mis-wiring.

ERP Efficiency Certified
As a component of the Kyoto Protocol to reduce carbon monoxide emissions, the European Energy Related Products (ERP) Directive includes an efficiency rating for fans. Pfannenberg proudly utilizes components which adhere to these requirements for up to 43% energy savings and operating costs reduction.

Maintenance Free, Filterless Design
The wide fin spacing is less susceptible to clogging from dirt buildup which can cause the unit to work harder and hamper efficiency.

External Display
For visual temperature monitoring.

High Airflow Backward Curve Impeller Fan
Provides high airflow in a long lasting, single bearing design. Outperforms typical two-bearing blowers with nearly twice the lifespan.

Hermetically Sealed Compressor
The absence of any refrigerant fill valves eliminates leak paths. Recharging is never needed. 100% cooling capacity efficiency is ensured.

Active Condensate Management
Condensation is a natural by-product of refrigeration. The heated condensate collection pan boils this off thereby eliminating the need for drain tubes and buckets.
To conserve power, this heater only activates when necessary.

c UL us CE

DTI 6801 (13000 - 16000 Btu/h) Recessed Cooling Units

Model Number	Part Number	Voltage (VAC)	Frequency (Hz)	Power Consumption (W)	Nominal (Run) Current @ 35A/35A °C	Fuse (maximum) Class CC	Noise Level (according to EN ISO 3741) dB(A)	Weight (without packaging) lb (kg)
DTI 6801	13896822055	400/460	50 / 60	1918 / 2369	4.5 / 4.6	16	<70	202 (92)
Design	**Housing:** galvanized sheet steel **Cover:** electrostatically powder coated RAL 7035 (light grey);							

Additional Data		DTI 6801	
Ambient Temperature Range		+ 59 … + 131 / + 15 … + 55	°F / °C
Control range (adjustable)	SC	+ 77 … + 113 / + 25 … + 45; factory setting + 95 / + 35	
Refrigerant	type	R134a	
	quantity	2000	g
Condensate management		integrated condensate evaporation system with safety overflow	
Protection system according to EN 60529	IP54	towards the electrical enclosure if used as intended by the manufacturer	
	IP34	towards the surroundings if used as intended by the manufacturer	
Accessories		Consult Factory	

For additional technical data, drawings and templates.
www.pfannenbergusa.com

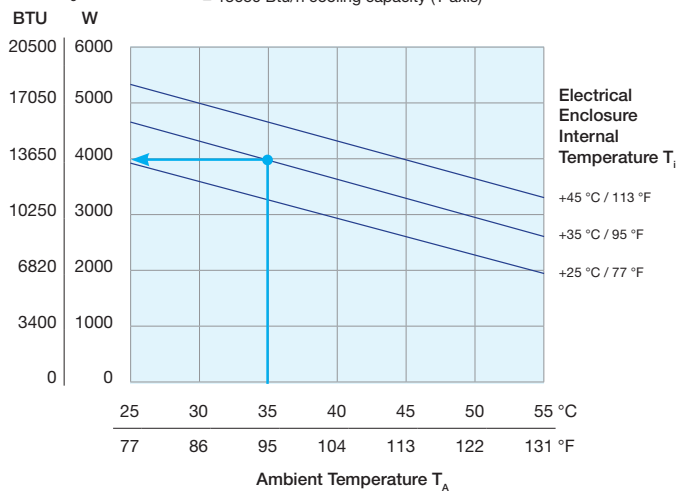
Available Models:

DTI 6801
Indoor Rated

Cooling Capacity Performance Curve

How to use this chart

Example: @ 95 °F (ambient, X-axis), @ 95 °F (internal, diagonal lines) = 13650 Btu/h cooling capacity (Y-axis)



Note: Cooling capacity may vary between voltage and configurations.

THE DTT εCOOL SERIES COOLING UNITS

For Top Mounted Applications

Pfannenberg's DTT Series top mounted cooling units are 100% condensate safe. These units are ideal for space-saving installation on the top of the control cabinet. One of the main features of the DTT's innovative condensate management design is the repositioning of the cooling circuits. Moving the cold area up prevents condensation from forming in the cabinet where the cooling unit meets the enclosure. A widened airflow in the evaporator stops the formation of condensate buildup. Finally return air channels are engineered to increase the speed of the air leaving the cooling unit, ensuring cool air is effectively distributed moisture-free within the enclosure.

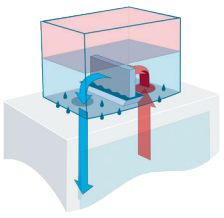
Advantages of DTT Cooling Units:

- Space-saving installation on top of the control cabinet:
  - Keep emergency exit routes and logistic paths clear.
  - Free up space on the production floor.
- Protected placement above the production floor. Unit is out of reach from fork lift trucks and other vehicles.
- DTT cooling units fit on all manufacturers' cabinets.
- 100 % protection against condensate due to patented seamless molded condensate tray.

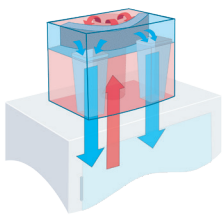
DTT – Guaranteed 4-fold condensate protection:

1. Repositioned cooling circuit prevents "cold bridge" formation on the ceiling of the electrical enclosure.
2. One piece leak-proof molded tub.
3. Managed water droplet control.
4. Eliminate the need for duct work inside the cabinet.

Cold Bridge

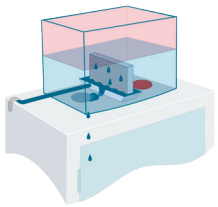


The challenge:
The lower, cold area of the cooling unit has direct contact with the ceiling of the warm electrical enclosure. As a result of this "cold bridge"effect, condensate can form on the inside ceiling of the electrical enclosure and drip into the inside.



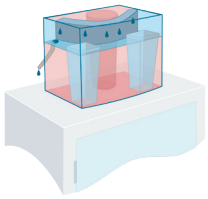
The Pfannenberg solution:
The position of the air-conditioning circuits was changed. When the cold area of the cooling unit is at the top and the warm area is at the bottom, a "cold bridge" cannot form on the inside ceiling eliminating the risk of condensate dripping inside the electrical enclosure.

Overflow of Condensate



The challenge:

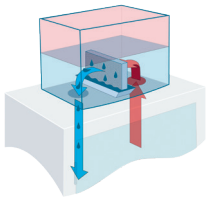
The horizontal condensate discharge which runs along the unit's floor makes the condensate drainage more difficult. Part of the condensate water that has accumulated in the cooling unit can overflow into the electrical enclosure via the air outlet opening.



The Pfannenberg solution:

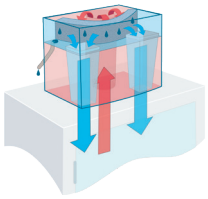
Vertical drainage of the condensate. The positioning of the evaporator in the top part of the cooling unit allows for problem-free drainage of the condensate water without contact to the electrical enclosure.

Condensate Build-up



The challenge:

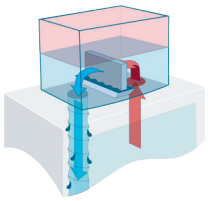
Concentrated warm air hits the evaporator. Parts of the condensate water formed there can be carried away by the airflow and can get into the electrical enclosure with the cold air.



The Pfannenberg solution:

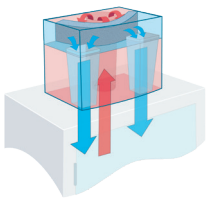
The warm air is spread out over a large evaporator. The reduced air speed at the evaporator reduces the risk of water being carried through the air, guaranteeing a condensate-free airflow in the direction of the electrical enclosure.

Air Hoses



The challenge:

The hoses conducting the cold air are surrounded by warm air from the electrical enclosure. As a result, condensate can form on the surface of the hose.



The Pfannenberg solution:

Integrated nozzles instead of air hoses. Air outlet nozzles are positioned on both sides of the cooling unit which accelerate the cold air and conduct it condensate-free down to the bottom of the electrical enclosure.

DTT 6101- 6201 | COOLING UNITS

1200 - 4000 Btu/h

ECOOL

The DTT 6101 - 6201 cooling units use our 100% patented condensate safety design. These cooling units are designed to be placed on top of the enclosure when there is a space shortage or aisles need to be kept clear.

Zero Sweat Guarantee
Condensate will not form in the cabinet where the cooling unit meets the enclosure.

Managed Water Droplet Control
As the airflow passes through the evaporator, any condensate generated on the evaporator will not be carried into the enclosure.

Eliminate the need for Duct Work
Return air channels are engineered to increase the speed of the air leaving the cooling unit, ensuring cool air is effectively distributed moisture-free within the enclosure.

One Piece Leak-Proof Molded Tub
Industry's only seamless molded condensate tray located at the top of the unit eliminates the ability for water to drip into the cabinet.

Energy Efficient
Our optional multi controller connected to a sensor, automatically turns off the fan when it is not needed.

Active Condensate Management
Condensate evaporator uses heat to eliminate condensate even when the system is not actively cooling.

Durable and Reliable Components
High quality compressor, fans and heat exchangers provide dependable cooling of electrical enclosure components. The micro-channel design provides a condenser coil that is harder to damage. Fin combing is not necessary to maintain proper airflow channels.

Fast and Easy Maintenance
Removable cover allows for easy access to the front facing control components. In addition the micro-channel condenser design allows for an air path that clogs less and is significantly easier to clean during general maintenance.

Reduced Maintenance Costs
Have a dirty environment? Use our optional tool-free quick release filter mat mounting frame and a standard Pfannenberg filter to extend the life of the unit and reduce maintenance costs.

Rugged Design
Powder coated steel or stainless steel cover designed for manufacturing environments. Easily painted to match enclosure or machine.

DTT 6101 - 6201 Series (1200 - 4000 Btu/h) Cooling Units

Model Number	Part Number	Voltage (VAC)	Frequency (Hz)	Power Consumption (W)	Nominal (Run) Current @ 35A/35A °C	Fuse (maximum) Class CC	Noise Level (according to EN ISO 3741) dB(A)	Weight (without packaging) lb (kg)
DTT 6101 Indoor Rated (NEMA Type 12)	13256144055	115	60	569	5.6	20	<62	73 (33)
	13256141055	230	50/60	458 / 532	2.36 / 3	10	<62	73 (33)
Design	**Housing:** galvanized sheet steel **Cover:** electrostatically powder coated RAL 7035 (light grey);							
DTT 6201 Indoor Rated (NEMA Type 12)	13256244055	115	60	877	10	20	<62	77 (35)
	13256241055	230	50/60	663 / 805	3.98 / 4.5	10	<62	77 (35)
	13256249055	400/460	50/60	706 / 845	2.82 / 2.5	6	<62	90 (41)
Design	**Housing:** galvanized sheet steel **Cover:** electrostatically powder coated RAL 7035 (light grey);							

Additional Data		DTT 6101	DTT 6201	
Ambient Temperature Range		+ 59 … + 131 / + 15 … + 55		°F / °C
Control range (adjustable)	SC	+ 77 … + 113 / + 25 … + 45; factory setting + 95 / + 35		
Refrigerant	type	R134a		
	quantity	400		g
Condensate management		active condensate evaporation system with safety overflow		
Protection system according to NEMA Type		NEMA 12 against enclosure when properly installed		
		NEMA 1 towards the surroundings when properly installed		

For additional technical data, drawings and templates.
www.pfannenbergusa.com

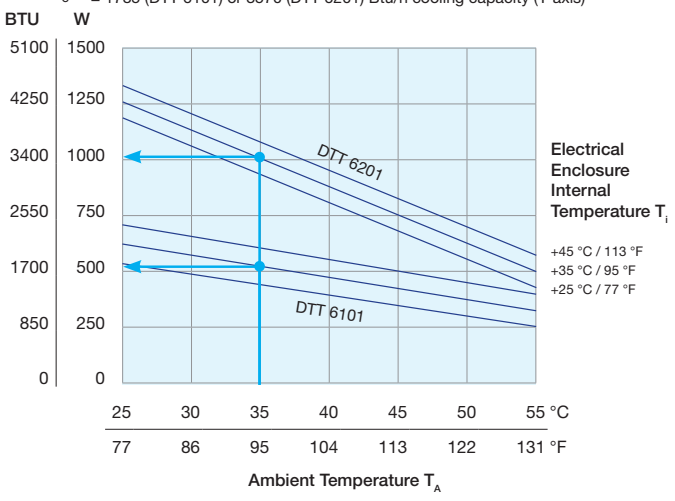
Available Models:

DTT 6101 **DTT 6201**

Cooling Capacity Performance Curve

How to use this chart

Example: @ 95 °F (ambient, X-axis), @ 95 °F (internal, diagonal lines) = 1785 (DTT 6101) or 3570 (DTT 6201) Btu/h cooling capacity (Y-axis)



Note: Cooling capacity may vary between voltage and configurations.

DTT 6301- 6401 | COOLING UNITS

4000 - 7000 Btu/h

ECOOL

The DTT 6301 - 6401 cooling units use our 100% patented condensate safety design. These cooling units are designed to be placed on top of the enclosure when there is a space shortage or aisles need to be kept clear.

Zero Sweat Guarantee
Condensate will not form in the cabinet where the cooling unit meets the enclosure.

Managed Water Droplet Control
As the airflow passes through the evaporator, any condensate generated on the evaporator will not be carried into the enclosure.

Eliminate the need for Duct Work
Return air channels are engineered to increase the speed of the air leaving the cooling unit, ensuring cool air is effectively distributed moisture-free within the enclosure.

One Piece Leak-Proof Molded Tub
Industry's only seamless molded condensate tray located at the top of the unit eliminates the ability for water to drip into the cabinet.

Energy Efficient
Our optional multi controller connected to a sensor, automatically turns off the fan when it is not needed.

Active Condensate Management
Condensate evaporator uses heat to eliminate condensate even when the system is not actively cooling.

Durable and Reliable Components
High quality compressor, fans and heat exchangers provide dependable cooling of electrical enclosure components. The micro-channel design provides a condenser coil that is harder to damage. Fin combing is not necessary to maintain proper airflow channels.

Fast and Easy Maintenance
Removable cover allows for easy access to the front facing control components. In addition the micro-channel condenser design allows for an air path that clogs less and is significantly easier to clean during general maintenance.

Reduced Maintenance Costs
Have a dirty environment? Use our optional tool-free quick release filter mat mounting frame and a standard Pfannenberg filter to extend the life of the unit and reduce maintenance costs.

Rugged Design
Powder coated steel or stainless steel cover designed for manufacturing environments. Easily painted to match enclosure or machine.

DTT 6301 - 6401 Series (4000 - 7000 Btu/h) Cooling Units

Model Number	Part Number	Voltage (VAC)	Frequency (Hz)	Power Consumption (W)	Nominal (Run) Current @ 35A/35A °C	Fuse (maximum) Class CC	Noise Level (according to EN ISO 3741) dB(A)	Weight (without packaging) lb (kg)
DTT 6301 Indoor Rated (NEMA Type 12)	13256344055	115	60	1027	15	20	<62	88 (40)
	13256341055	230	50/60	980 / 1140	5.73 / 7	10	<62	99 (45)
	13256349055	400/460	50/60	962 / 1150	3.75 / 3.6	6	<62	116.8 (53)
Design	**Housing:** galvanized sheet steel **Cover:** electrostatically powder coated RAL 7035 (light grey);							
DTT 6401 Indoor Rated (NEMA Type 12)	13256444055	115	60	1894	20	20	<62	97 (44)
	13256441055	230	50/60	1049 / 1275	6.2 / 7	10	<62	101 (46)
	13256432055	400/460	50/60	1300 / 1598	3.35 / 3.3	6	<62	112 (51)
Design	**Housing:** galvanized sheet steel **Cover:** electrostatically powder coated RAL 7035 (light grey);							

Additional Data		DTT 6301	DTT 6401	
Ambient Temperature Range		+ 59 … + 131 / + 15 … + 55		°F / °C
Control range (adjustable)	SC	+ 77 … + 113 / + 25 … + 45; factory setting + 95 / + 35		
Refrigerant	type	R134a		
	quantity	725	750	g
Condensate management		active condensate evaporation system with safety overflow		
Protection system according to NEMA Type		NEMA 12 against enclosure when properly installed		
		NEMA 1 towards the surroundings when properly installed		

For additional technical data, drawings and templates.
www.pfannenbergusa.com

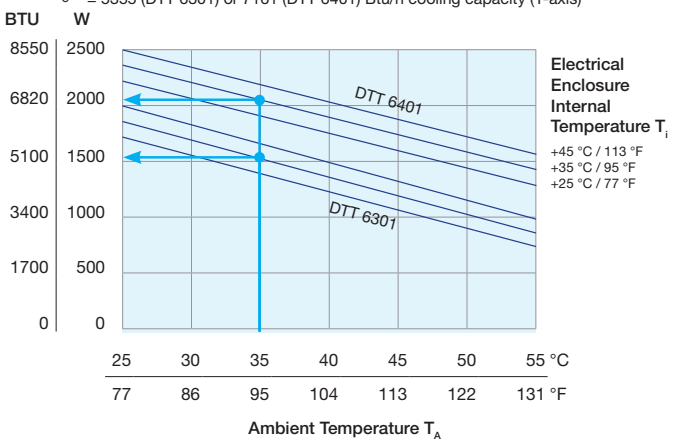
Available Models:

DTT 6301 **DTT 6401**

Cooling Capacity Performance Curve

How to use this chart

Example: @ 95 °F (ambient, X-axis), @ 95 °F (internal, diagonal lines) P_C = 5355 (DTT 6301) or 7161 (DTT 6401) Btu/h cooling capacity (Y-axis)



Note: Cooling capacity may vary between voltage and configurations.

DTT 6601- 6801 | COOLING UNITS

7000 - 14000 Btu/h

ECOOL

The DTT 6601 - 6801 cooling units use our 100% patented condensate safety design. These cooling units are designed to be placed on top of the enclosure when there is a space shortage or aisles need to be kept clear.

Zero Sweat Guarantee
Condensate will not form in the cabinet where the cooling unit meets the enclosure.

Managed Water Droplet Control
As the airflow passes through the evaporator, any condensate generated on the evaporator will not be carried into the enclosure.

Eliminate the need for Duct Work
Return air channels are engineered to increase the speed of the air leaving the cooling unit, ensuring cool air is effectively distributed moisture-free within the enclosure.

One Piece Leak-Proof Molded Tub
Industry's only seamless molded condensate tray located at the top of the unit eliminates the ability for water to drip into the cabinet.

Energy Efficient
Our optional multi controller connected to a sensor, automatically turns off the fan when it is not needed.

Active Condensate Management
Condensate evaporator uses heat to eliminate condensate even when the system is not actively cooling.

Durable and Reliable Components
High quality compressor, fans and heat exchangers provide dependable cooling of electrical enclosure components. The micro-channel design provides a condenser coil that is harder to damage. Fin combing is not necessary to maintain proper airflow channels.

Fast and Easy Maintenance
Removable cover allows for easy access to the front facing control components. In addition the micro-channel condenser design allows for an air path that clogs less and is significantly easier to clean during general maintenance.

Reduced Maintenance Costs
Have a dirty environment? Use our optional tool-free quick release filter mat mounting frame and a standard Pfannenberg filter to extend the life of the unit and reduce maintenance costs.

Rugged Design
Powder coated steel or stainless steel cover designed for manufacturing environments. Easily painted to match enclosure or machine.

DTT 6601 - 6801 Series (7000 - 14000 Btu/h) Cooling Units

Model Number	Part Number	Voltage (VAC)	Frequency (Hz)	Power Consumption (W)	Nominal (Run) Current @ 35A/35A °C	Fuse (maximum) Class CC	Noise Level (according to EN ISO 3741) dB(A)	Weight (without packaging) lb (kg)
DTT 6601 Indoor Rated (NEMA Type 12)	13256632055	400/460	50/60	1700 / 2100	3.16 / 4.5	10	<62	165 (75)
Design	**Housing:** galvanized sheet steel **Cover:** electrostatically powder coated RAL 7035 (light grey);							
DTT 6801 Indoor Rated (NEMA Type 12)	13256832055	400/460	50/60	1601 / 1989	4.6 / 4.5	10	<62	170 (77)
Design	**Housing:** galvanized sheet steel **Cover:** electrostatically powder coated RAL 7035 (light grey);							

Additional Data		DTT 6601	DTT 6801	
Ambient Temperature Range		+ 59 … + 131 / + 15 … + 55		°F / °C
Control range (adjustable)	SC	+ 77 … + 113 / + 25 … + 45; factory setting + 95 / + 35		
Refrigerant	type	R134a		
	quantity	1250		g
Condensate management		active condensate evaporation system with safety overflow		
Protection system according to NEMA Type		NEMA 12 against enclosure when properly installed		
		NEMA 1 towards the surroundings when properly installed		

For additional technical data, drawings and templates.
www.pfannenbergusa.com

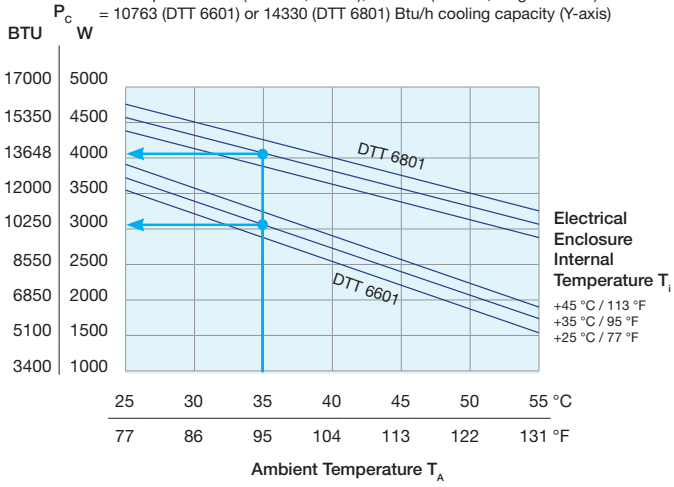
Available Models:

DTT 6601 **DTT 6801**

Cooling Capacity Performance Curve

How to use this chart

Example: @ 95 °F (ambient, X-axis), @ 95 °F (internal, diagonal lines) = 10763 (DTT 6601) or 14330 (DTT 6801) Btu/h cooling capacity (Y-axis)



Note: Cooling capacity may vary between voltage and configurations.

SPARE PART KITS

Original Parts - Only from Pfannenberg

In the event of a cooling unit failure, original Pfannenberg spare parts are always in stock. Specific spare part kits are also available for each DTS range of Cooling Units to ensure the best reliability of your unit. By using our original spare parts, downtime is reduced to a minimum or longer downtimes are prevented. Individual spare parts are also available, please consult factory for details.

Why choose Pfannenberg's original parts:

Developed with each device, our parts are a perfect fit every time. They automatically benefit from every factory product improvement and upgrade, as well as from over 50 years of thermal management experience.

A long service life and a fair price make our original parts particularly economical.

Only with original parts from Pfannenberg can you be sure that ...

- They are the right parts.
- They fit.
- They are in stock.
- They can be delivered quickly.
- You don't lose any valuable time.
- The proper functionality is guaranteed.
- The guarantee for your whole unit remains intact.

We have bundled the most frequently requested spare parts and wearing parts into two kits: an electronics kit and a refrigeration kit. We ensure quick and global delivery with these, and help you to keep possible downtime to a minimum.

Model Number	Voltage	Part number
Electric Kit - Includes Fans & Electronics Components.		
Electric Kit DTS 36x1	460 V	18886000000
	230 V	18886000001
Electric Kit DTS 34x1	460 V	18886000002
Electric Kit DTS 32x5	460 V	18886000003
	230 V	18886000004
	115 V	18886000005
Electric Kit DTS 32x1	460 V	18886000006
	230 V	18886000007
	115 V	18886000008
Electric Kit DTS 31x5	460 V	18886000009
	230 V	18886000010
	115 V	18886000011
Electric Kit DTS 31x1	460 V	18886000012
	230 V	18886000013
	115 V	18886000014
Electric Kit DTS 3061/3081	230 V	18886000015
	115 V	18886000016
Electric Kit DTS 3031	230 V	18886000017
	115 V	18886000018
Electric E-Box Kit		
Electric E-Box Kit DTS 31x1	-	18886000019
Electric E-Box Kit DTS 32x5	-	18886000020

Model Number	Voltage	Part number
Refrigeration Kit - Includes Compressor, Expansion Valve, Pressure Switch.		
Refrig. Kit DTS 36x1	460 V	18886100000
	230 V	18886100001
Refrig. Kit DTS 34x1	460 V	18886100002
Refrig. Kit DTS 32x5	460 V	18886100003
	230 V	18886100004
	115 V	18886100005
Refrig. Kit DTS 32x1	460 V	18886100006
	230 V	18886100007
	115 V	18886100008
Refrig. Kit DTS 31x5	460 V	18886100009
	230 V	18886100010
	115 V	18886100011
Refrig. Kit DTS 31x1	230 V	18886100012
	460 V	18886100013
	115 V	18886100014
Refrig. Kit DTS 3061/3081	230 V	18886100015
	115 V	18886100016

FILTER KITS

For harsh, dirty environments

Model Number	Description	Part number
Filter Kit		
Filter Kit DTS 3021/3031	Aluminum Mesh	18881500008
Filter Kit DTS 3041/3061	Aluminum Mesh	18881500005
Filter Kit DTS 31xx	Aluminum Mesh	18881500009
Filter Kit DTS 31x1 SL / 31x5	Aluminum Mesh	18380000025
Filter Kit DTS 32xx	Aluminum Mesh	18881500001
Filter Kit DTS 32x5	Aluminum Mesh	18881500007
Filter Kit DTS 34xx	Filter Kit (w/5 pack of filter media)	18881500010
Filter Kit DTS 36xx	Aluminum Mesh	18881500004

ACCESSORIES

To add more flexibility to your unit

Condensate Bottle

External container for collecting the accumulating condensed water.

Compatible with	Part number
All units	18314000100

External Condensate Evaporation System-KV PTC

External condensate evaporator for the accumulated condensed water.

Compatible with	Part number
115 - 230 V 50 / 60 Hz	18314000001

PWS 3000 Series
Air / Water Heat Exchangers

Efficient Cooling when Ambient Conditions are at their Worst

The use of Pfannenberg Air/Water Heat Exchangers is particularly suitable where ambient temperatures are high or the atmosphere proves to be particularly oily or aggressive.

Ideal areas of use for air/water heat exchangers are wherever machines or production processes are cooled by tempered water and water is thus already provided.

With cooling capacities ranging from 2,218 BTU (650 W) to 34,121 BTU (10,000 W) these units are specifically engineered to allow safe, efficient use of liquid coolant to cool enclosure electronics. Additionally our sloped horizontal cover surfaces and optional NEMA Type 4X stainless steel type rating make the PWS 3000 series perfect for wash-down applications.

THE TECHNOLOGY OF COOLING

Cooling with Closed Loop Air to Water Heat Exchangers

Pfannenberg Air to Water Heat Exchangers use a supplied water source to remove the heat from the electrical cabinet. The heat from the enclosure is transferred to fluid and the heated fluid is then piped away adding no heat to the ambient environment. Because there is no heat transfer to the ambient environment, there is no need to de-rate the unit's performance in high ambient conditions.

How do I know if a Air to Water Heat Exchanger is the right product for my application?

- If there is a chilled water supply readily available at the enclosure.
- If the environment has extreme conditions like extremely high ambients, extremely dirty or caustic, that make other systems not applicable.

Properly sizing a Air to Water Heat Exchanger

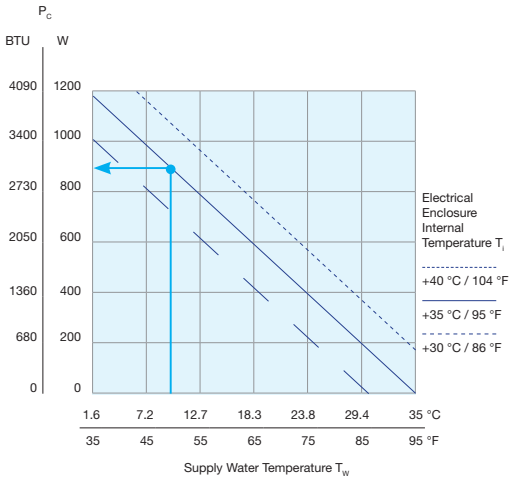
To properly size an Air to Water Heat Exchanger you must know **the required cooling capacity in Watts, available water temperature and the dimensions of the unit and enclosure.**

$$\{P_C = P_D - P_R\} \quad \{P_R = C \times A \times \Delta T\}$$

- **P_C [Watt]:**
  Refrigeration capacity of a cooling unit.
- **P_D [Watt]:**
  Dissipation loss: Thermal power generated inside a cabinet by the dissipation loss of components.
- **P_R [Watt]:**
  Radiant heat gain/loss: Heat transfer through the skin of the enclosure (insulation factor not included).
- **C [W/m² °C]:**
  Coefficient of heat transmission.
- **A [m²]:**
  Surface area of electronics cabinet.
- **ΔT[°C]:**
  Difference in temperature between the ambient air and the air inside the electronics cabinet.

Utilizing performance curves to properly size cooling units:

Pfannenberg utilizes the DIN standard 35/35 °C when rating our cooling units. Many other companies use 50/50 °C, which provides a higher, non-usable value. Customers should use their own application temperatures to determine the proper cooling capacity of the system.



Important information when utilizing Air to Water Heat Exchangers:

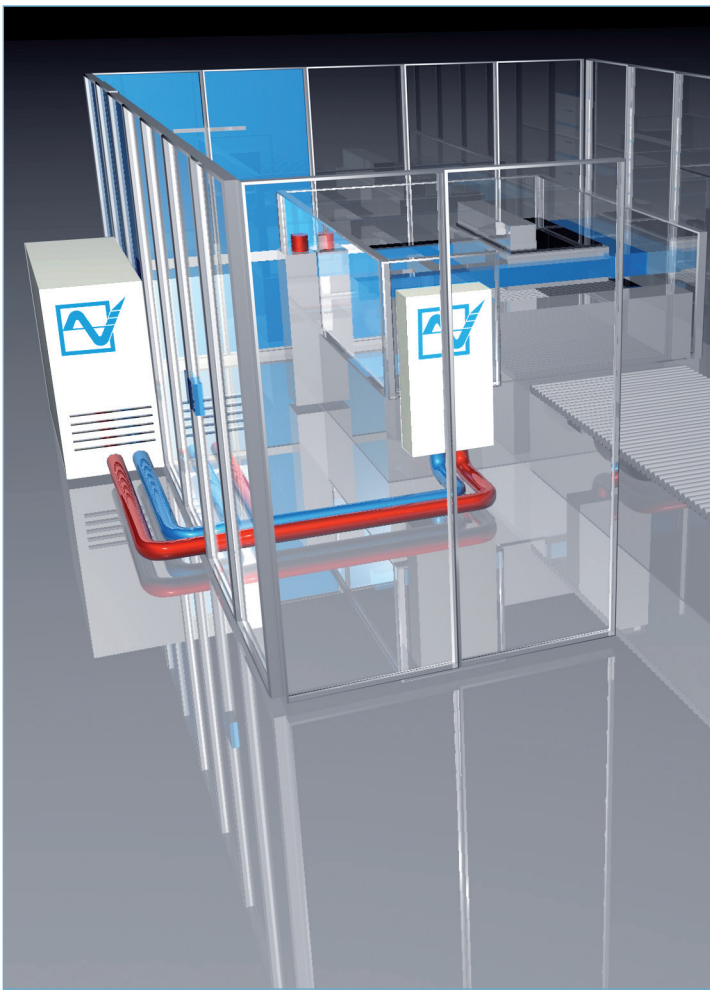
- The performance of an Air to water Heat Exchanger is directly related to the difference in the water temperature and the air temperature inside the enclosure.
- To manage condensation, an external condensation evaporator (KVDTX) can be used.
- The enclosure should be sealed to prevent the inflow of ambient air.
- Use the door contact switch to impede operation with open doors and consequent excessive accumulation of condensation.
- Make sure unit is level.
- Setting the temperature to the lowest setting is not the optimal solution due to the condensation issues. The value we have preset on the cooling unit is a sound compromise between cooling the inside of the enclosure and the accumulation of condensation.

AIR/WATER HEAT EXCHANGERS QUICK SELECTION CHART

Type	Cooling capacity Btu/h / W*	Rated voltage	Dimensions W x H x D Inches (mm)	Approvals			Page
				UL	cUL	CE	
PWS 3062	2218 / 650	115 V / 230 V	10.13 (257) x 24.14 (613) x 5.62 (142.8)	●	●	●	86
PWS 3082	2900 / 900	115 V / 230 V	10.13 (257) x 24.14 (613) x 5.62 (142.8)	●	●	●	86
PWS 3102	3753 / 1100	115 V / 230 V	15.80 (401) x 32.05 (814) x 6.28 (159)	●	●	●	88
PWS 3152	5800 / 1700	115 V / 230 V	11.78 (299) x 36.65 (931) x 8.11 (206)	●	●	●	90
PWS 3202	7165 / 2100	115 V / 230 V	15.76 (400) x 51.89 (1318) x 9.07 (230)	●	●	●	92
PWS 3302	12283 / 3600	115 V / 230 V	15.76 (400) x 51.89 (1318) x 9.07 (230)	●	●	●	94
PWS 3502	21496 / 6300	115 V / 230 V	15.76 (400) x 57.09 (1450) x 8.60 (218)	●	●	●	96
PWS 31002	34121 / 10000	230V / 460 V	19.74 (501) x 65.52 (1664) x 12.10 (307)	●	●	●	98
PWS 7102	3242 / 950	115 V / 230 V	7.87 (200) x 19.98 (500) x 5.91 (150)	●	●	●	100
PWS 7332	10748 / 3150	115 V / 230 V	15.75 (400) x 37.40 (950) x 7.48 (190)	●	●	●	100

The PWS 3000 Advantage Series has been engineered to provide enhanced performance features:

- Mounting templates that are compatible with those of the DTS 3000 cooling units provides interchangeability allowing the best Pfannenberg solution to be used for any application.
- Isolation of the water circuit components and enhanced air baffling provide the best protection of the control enclosure from water carry-over.
- An electronic thermostat with digital LED display allows easy performance verification and temperature programming.
- Free-draining heat exchanger coil design, plus manual operation of the water solenoid valve allows easy winterization for seasonal, outdoor applications.
- Sloped horizontal cover surfaces and optional NEMA Type 4X SS type rating make the PWS 3000 Advantage Series perfect for wash-down applications.



PWS 30X2 | AIR/WATER HEAT EXCHANGERS

2218 - 2900 Btu/h

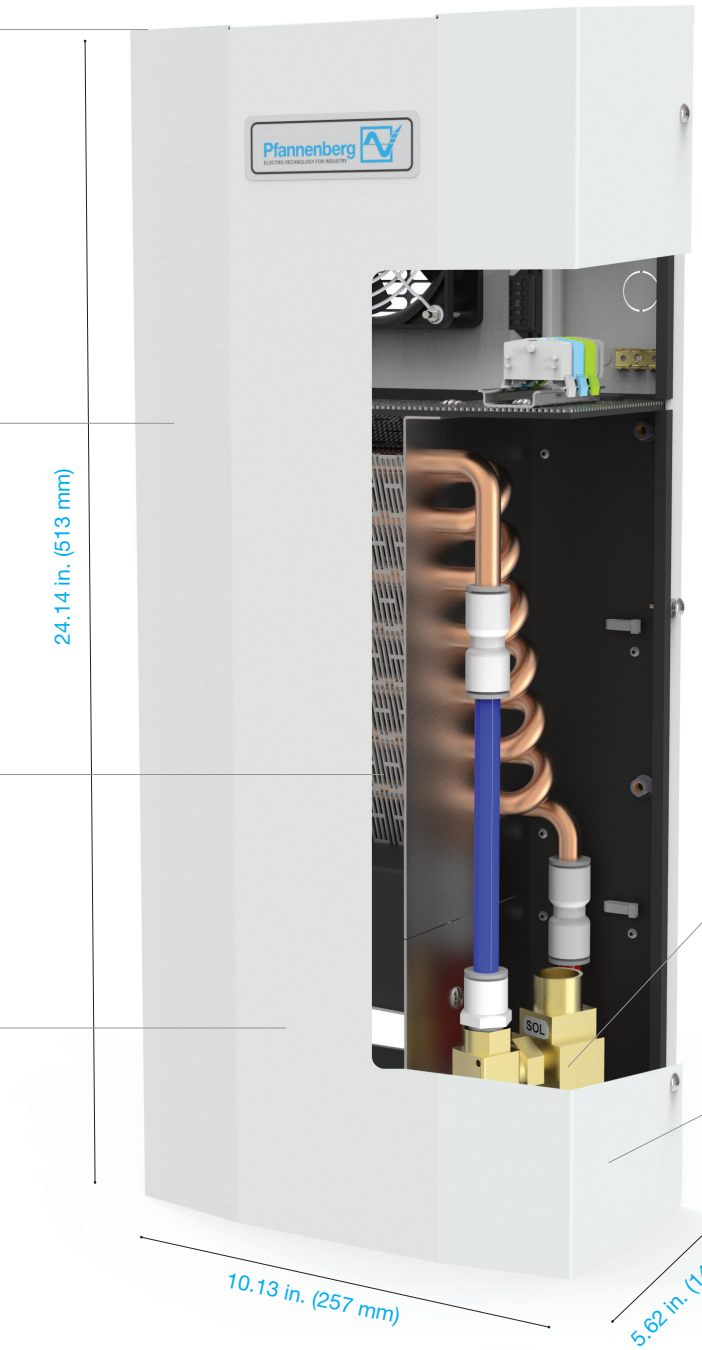
The PWS 30X2 Advantage Series Air/Water Heat Exchangers is our smallest air/water heat exchanger. These units are ideal for harsh ambient conditions, requiring a cool liquid source and power. Available with either powder coated or stainless steel covers and 2 different capacities. Need a cool liquid source? Pair this unit with one of our packaged chillers.

Washdown Roof Design
Metal covers are designed with a sloped top which sheds water away from the electrical enclosure as well as eliminates potential water pooling, corrosion and ice buildup.

Rugged Design
Powder coated steel or stainless steel cover designed for manufacturing environments. Easily painted to match enclosure or machine.

Long Airflow Path
Heat exchangers are designed to draw hot air from the top of the enclosure and deliver cool air below the components.

Closed Loop Design
Designed to isolate the external ambient air from the internal air circuit eliminating the risk of contaminants entering the cabinet.



Push to Connect Fittings
Hydronic connectors that supports quick connection to 1/2 inch O.D. hose or 1/2 inch I.D. hose with included adapter. Unlike other units that have rigid permanent connections.

Optimized Internal Design
Smart engineered solution, easy to service and maintain.

Intelligent Control of Water Flow
The adjustable electronic thermostat permits precise control of the electrical enclosure temperature by regulating the coolant flow which is activated by a solenoid valve. This regulates the coolant flow to minimize coolant waste and increase energy-efficiency.

Condensation Management
Physical barriers allow for condensation to be collected and drained from the system with zero intrusion into the cabinet.

PWS 3062 Series 2218 Btu/h (650 W) Air to Water Heat Exchangers

Model Number	Part Number	Voltage (VAC)	Frequency (Hz)	Power Consumption (W)	Nominal (Run) Current (A)	Fuse (maximum)	Fluid Connection	Noise Level (according to EN ISO 3741) dB(A)	Dry Weight (without packaging) lb (kg)
PWS 3062 Indoor/Outdoor Rated (NEMA Type 12/3R/4)	12358010045	115	60	28.9	.33	6	1/2"push in fitting	<51	22 (10)
	12358020045	230	50/60	30.4	.15	6	1/2"push in fitting	<51	22 (10)
Design	**Housing:** galvanized sheet steel **Cover:** electrostatically powder coated RAL 7035 (light grey); for ANSI 61 grey use part no. ending in ...251								
PWS 3062 SS Indoor/Outdoor Rated (NEMA Type 12/3R/4/4x)	12358010048	115	60	28.9	.33	6	1/2"push in fitting	<51	22 (10)
	12358020048	230	50/60	30.4	.15	6	1/2"push in fitting	<51	22 (10)
Design	**Housing:** stainless steel 304 **Cover:** stainless steel 304								

PWS 3082 Series 2900 Btu/h (900 W) Air to Water Heat Exchangers

PWS 3082 Indoor/Outdoor Rated (NEMA Type 12/3R/4)	12358110045	115	60	21.3	0.235	6	1/2"push in fitting	<51	22 (10)
	12358120045	230	50/60	18.7	.126	6	1/2"push in fitting	<51	22 (10)
Design	**Housing:** galvanized sheet steel **Cover:** electrostatically powder coated RAL 7035 (light grey); for ANSI 61 grey use part no. ending in ...251								
PWS 3082 SS Indoor/Outdoor Rated (NEMA Type 12/3R/4/4x)	12358110048	115	60	21.3	0.235	6	1/2"push in fitting	<51	22 (10)
	12358120048	230	50/60	18.7	.126	6	1/2"push in fitting	<51	22 (10)
Design	**Housing:** stainless steel 304 **Cover:** stainless steel 304								

Additional Data	PWS 3062	PWS 3062 SS	PWS 3082	PWS 3082 SS	
Control range (adjustable) SC	+ 50 … + 104 / + 10 … + 40; factory setting + 95 / + 35				°F / °C
Rated flow rate	2 (450)				gpm (L/H)
Maximum water pressure	145 (10)				PSIG (BAR)
NEMA Type rating	12/3R/4/4x				Against enclosure when properly installed

For additional technical data, drawings and manuals.
www.pfannenbergusa.com

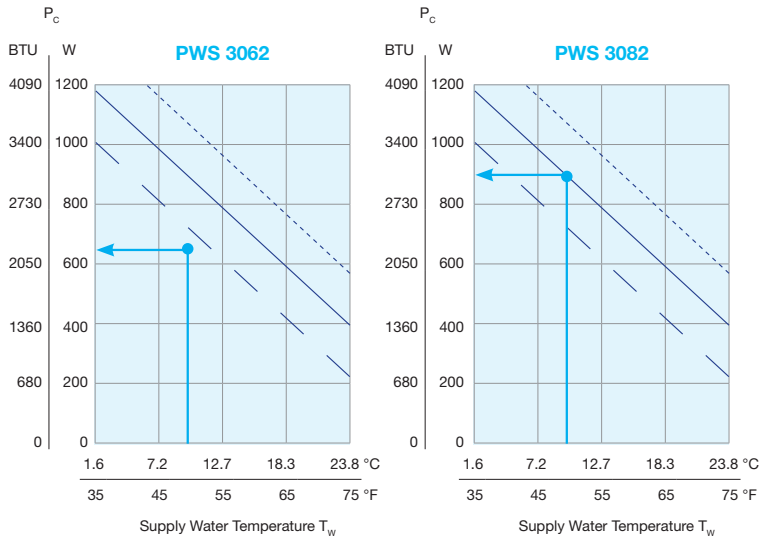
Available Models:

Light Grey
Indoor/Outdoor Rated
(NEMA Type 12/3R/4/4x)

Stainless Steel
Indoor/Outdoor Rated
(NEMA Type 12/3R/4/4x)

Cooling Capacity Performance Curve

How to Use this chart
Example: @ 95 °F (ambient, X-axis), @ 95 °F (internal, diagonal lines)
= PWS 3082: 2900 Btu/h cooling capacity (Y-axis), PWS 3062: 2218 Btu/h cooling capacity (Y-axis)



Note: For supply water temperature above 23.8°C / 75°F visit pfannenbergusa.com

PWS 3102 | AIR/WATER HEAT EXCHANGERS

3753 Btu/h

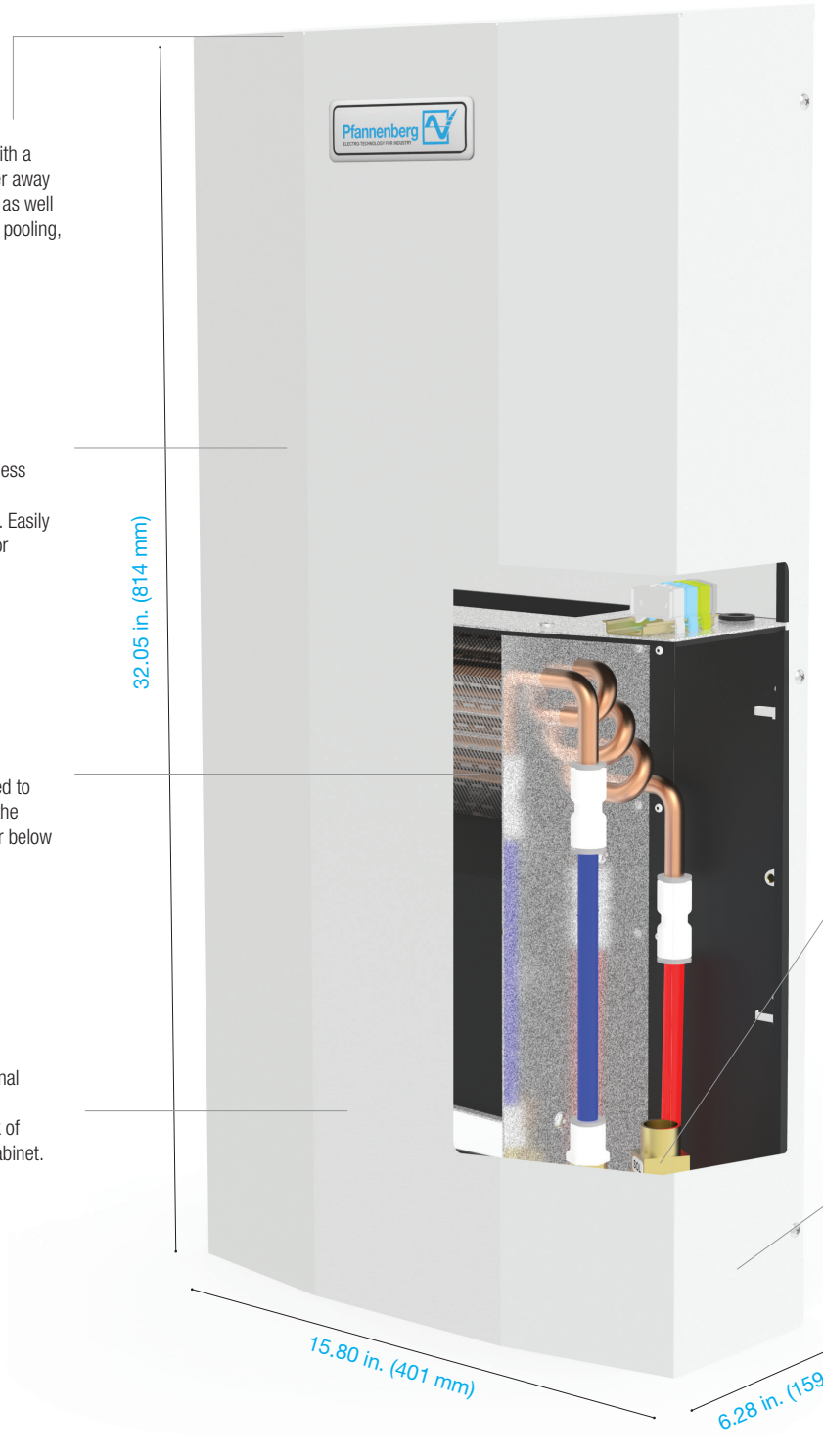
The PWS 3102 Advantage Series Air/Water Heat Exchangers offer over 3700 Btu/h cooling capacity and are ideal for harsh ambient conditions. Requiring only a cool liquid source and power. Available with either powder coated or stainless steel covers. Need a cool liquid source? Pair this unit with one of our packaged chillers.

Washdown Roof Design
Metal covers are designed with a sloped top which sheds water away from the electrical enclosure as well as eliminates potential water pooling, corrosion and ice buildup.

Rugged Design
Powder coated steel or stainless steel cover designed for manufacturing environments. Easily painted to match enclosure or machine.

Long Airflow Path
Heat exchangers are designed to draw hot air from the top of the enclosure and deliver cool air below the components.

Closed Loop Design
Designed to isolate the external ambient air from the internal air circuit eliminating the risk of contaminants entering the cabinet.



Push to Connect Fittings
Hydronic connectors that supports quick connection to 1/2 inch O.D. hose or 1/2 inch I.D. hose with included adapter. Unlike other units that have rigid permanent connections.

Optimized Internal Design
Smart engineered solution, easy to service and maintain.

Intelligent Control of Water Flow
The adjustable electronic thermostat permits precise control of the electrical enclosure temperature by regulating the coolant flow which is activated by a solenoid valve. This regulates the coolant flow to minimize coolant waste and increase energy-efficiency.

Condensation Management
Physical barriers allow for condensation to be collected and drained from the system with zero intrusion into the cabinet.

PWS 3102 Series 3753 Btu/h (1100 W) Air to Water Heat Exchangers

Model Number	Part Number	Voltage (VAC)	Frequency (Hz)	Power Consumption (W)	Nominal (Run) Current (A)	Fuse (maximum)	Fluid Connection	Noise Level (according to EN ISO 3741) dB(A)	Dry Weight (without packaging) lb (kg)
PWS 3102 Indoor/Outdoor Rated (NEMA Type 12/3R/4)	12358210045	115	60	52.9	0.571	6	1/2"push in fitting	<59	33 (15)
	12358220045	230	50/60	58	0.29	6	1/2"push in fitting	<59	33 (15)
Design	**Housing:** galvanized sheet steel **Cover:** electrostatically powder coated RAL 7035 (light grey); for ANSI 61 grey use part no. ending in ...251								
PWS 3102 SS Indoor/Outdoor Rated (NEMA Type 12/3R/4/4x)	12358210048	115	60	52.9	0.571	6	1/2"push in fitting	<59	33 (15)
	12358220048	230	50/60	58	0.29	6	1/2"push in fitting	<59	33 (15)
Design	**Housing:** stainless steel 304 **Cover:** stainless steel 304								

Additional Data		PWS 3102	PWS 3102 SS	
Control range (adjustable)	SC	+ 50 … + 104 / + 10 … + 45; factory setting + 95 / + 35		°F / °C
Rated flow rate		2 (450)		gpm (L/H)
Maximum water pressure	PSIG	145 (10)		PSIG (BAR)
NEMA Type rating		12/3R/4/4x		against enclosure when properly installed

For additional technical data, drawings and manuals.
www.pfannenbergusa.com

Available Models:

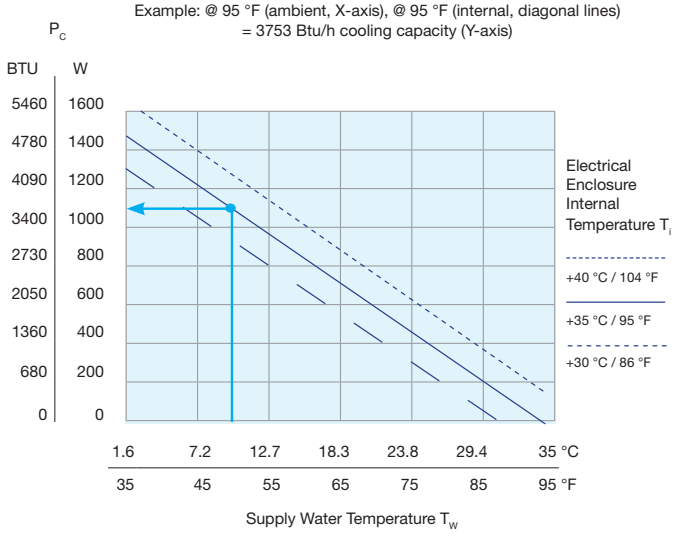
Light Grey
Indoor/Outdoor Rated
(NEMA Type 12/3R/4/4x)

Stainless Steel
Indoor/Outdoor Rated
(NEMA Type 12/3R/4/4x)

Cooling Capacity Performance Curve

How to use this chart

Example: @ 95 °F (ambient, X-axis), @ 95 °F (internal, diagonal lines) = 3753 Btu/h cooling capacity (Y-axis)



PWS 3152 | AIR/WATER HEAT EXCHANGERS

5800 Btu/h

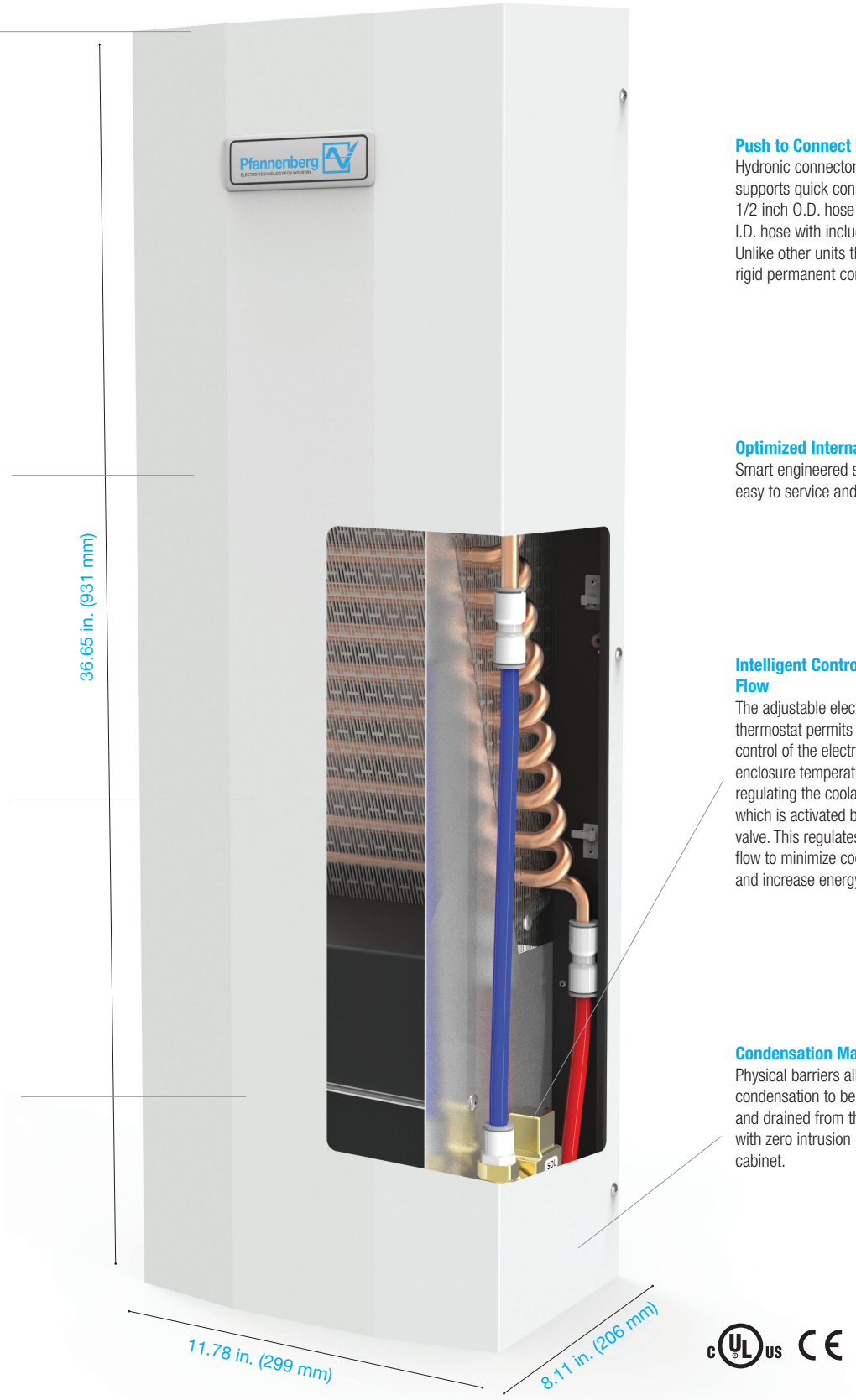
The PWS 3152 Advantage Series Air/Water Heat Exchangers offer over 5000 Btu/h cooling capacity and are ideal for harsh ambient conditions. Requiring only a cool liquid source and power. Available with either powder coated or stainless steel covers. Need a cool liquid source? Pair this unit with one of our packaged chillers.

Washdown Roof Design
Metal covers are designed with a sloped top which sheds water away from the electrical enclosure as well as eliminates potential water pooling, corrosion and ice buildup.

Rugged Design
Powder coated steel or stainless steel cover designed for manufacturing environments. Easily painted to match enclosure or machine.

Long Airflow Path
Heat exchangers are designed to draw hot air from the top of the enclosure and deliver cool air below the components.

Closed Loop Design
Designed to isolate the external ambient air from the internal air circuit eliminating the risk of contaminants entering the cabinet.



Push to Connect Fittings
Hydronic connectors that supports quick connection to 1/2 inch O.D. hose or 1/2 inch I.D. hose with included adapter. Unlike other units that have rigid permanent connections.

Optimized Internal Design
Smart engineered solution, easy to service and maintain.

Intelligent Control of Water Flow
The adjustable electronic thermostat permits precise control of the electrical enclosure temperature by regulating the coolant flow which is activated by a solenoid valve. This regulates the coolant flow to minimize coolant waste and increase energy-efficiency.

Condensation Management
Physical barriers allow for condensation to be collected and drained from the system with zero intrusion into the cabinet.

PWS 3152 Series 5800 Btu/h (1700 W) Air to Water Heat Exhangers

Model Number	Part Number	Voltage (VAC)	Frequency (Hz)	Power Consumption (W)	Nominal (Run) Current (A)	Fuse (maximum)	Fluid Connection	Noise Level (according to EN ISO 3741) dB(A)	Dry Weight (without packaging) lb (kg)
PWS 3152 Indoor/Outdoor Rated (NEMA Type 12/3R/4)	12358610005	115	60	55.7	0.56	6	1/2"push in fitting	<60	34 (15.5)
	12358620005	230	50/60	58	0.29	6	1/2"push in fitting	<60	34 (15.5)
Design	**Housing:** galvanized sheet steel **Cover:** electrostatically powder coated RAL 7035 (light grey); for ANSI 61 grey use part no. ending in ...251								
PWS 3152 SS Indoor/Outdoor Rated (NEMA Type 12/3R/4/4x)	12358610008	115	60	55.7	0.56	6	1/2"push in fitting	<60	34 (15.5)
	12358620008	230	50/60	58	0.29	6	1/2"push in fitting	<60	34 (15.5)
Design	**Housing:** stainless steel 304 **Cover:** stainless steel 304								

Additional Data		PWS 3152	PWS 3152 SS	
Control range (adjustable)	SC	+ 50 … + 104 / + 10 … + 45; factory setting + 95 / + 35		°F / °C
Rated flow rate		2 (450)		gpm (L/H)
Maximum water pressure	PSIG	145 (10)		PSIG (BAR)
NEMA Type rating		12/3R/4/4x		against enclosure when properly installed

For additional technical data, drawings and manuals.
www.pfannenbergusa.com

Available Models:

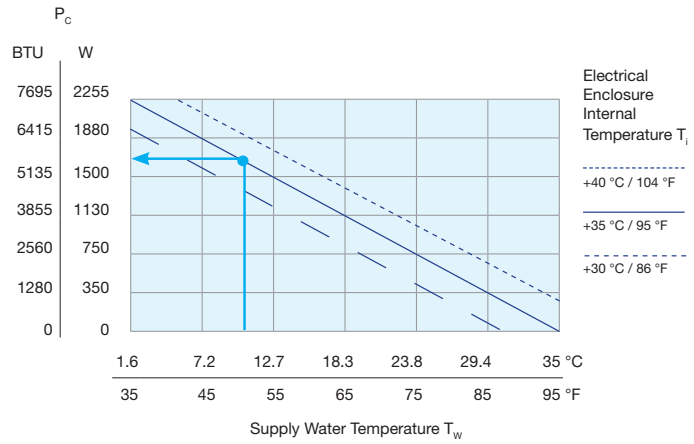
Light Grey
Indoor/Outdoor Rated
(NEMA Type 12/3R/4/4x)

Stainless Steel
Indoor/Outdoor Rated
(NEMA Type 12/3R/4/4x)

Cooling Capacity Performance Curve

How to use this chart

Example: @ 95 °F (ambient, X-axis), @ 95 °F (internal, diagonal lines) = 5800 Btu/h cooling capacity (Y-axis)



PWS 3202 | AIR/WATER HEAT EXCHANGERS

7165 Btu/h

The PWS 3202 Advantage Series Air/Water Heat Exchangers offer over 7000 Btu/h cooling capacity and are ideal for harsh ambient conditions. Requiring only a cool liquid source and power. Available with either powder coated or stainless steel covers. Need a cool liquid source? Pair this unit with one of our packaged chillers.

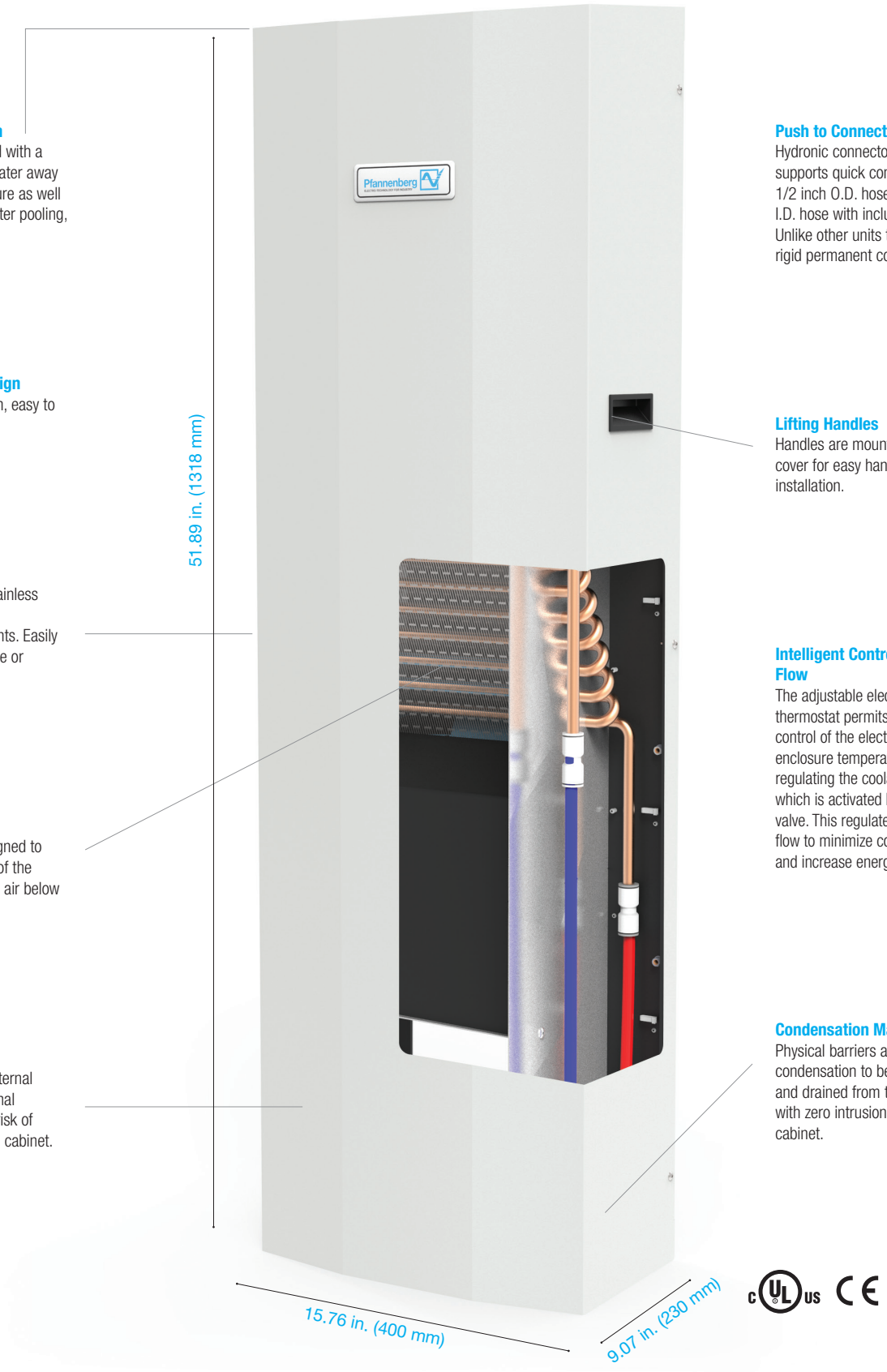
Washdown Roof Design
Metal covers are designed with a sloped top which sheds water away from the electrical enclosure as well as eliminates potential water pooling, corrosion and ice buildup.

Optimized Internal Design
Smart engineered solution, easy to service and maintain.

Rugged Design
Powder coated steel or stainless steel cover designed for manufacturing environments. Easily painted to match enclosure or machine.

Long Airflow Path
Heat exchangers are designed to draw hot air from the top of the enclosure and deliver cool air below the components.

Closed Loop Design
Designed to isolate the external ambient air from the internal air circuit eliminating the risk of contaminants entering the cabinet.



Push to Connect Fittings
Hydronic connectors that supports quick connection to 1/2 inch O.D. hose or 1/2 inch I.D. hose with included adapter. Unlike other units that have rigid permanent connections.

Lifting Handles
Handles are mounted on the cover for easy handling and installation.

Intelligent Control of Water Flow
The adjustable electronic thermostat permits precise control of the electrical enclosure temperature by regulating the coolant flow which is activated by a solenoid valve. This regulates the coolant flow to minimize coolant waste and increase energy-efficiency.

Condensation Management
Physical barriers allow for condensation to be collected and drained from the system with zero intrusion into the cabinet.

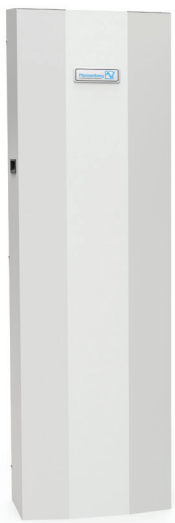
PWS 3202 Series 7165 Btu/h (2100 W) Air to Water Heat Exchangers

Model Number	Part Number RAL 7035 (Light Grey)	Voltage (VAC)	Frequency (Hz)	Power Consumption (W)	Nominal (Run) Current (A)	Fuse (maximum)	Fluid Connection	Noise Level (according to EN ISO 3741) dB(A)	Dry Weight (without packaging) lb (kg)
PWS 3202 Indoor/Outdoor Rated (NEMA Type 12/3R/4)	12358310045	115	60	77.6	0.694	6	1/2"push in fitting	<62	62 (28)
	12358320045	230	50/60	66.2	0.312	6	1/2"push in fitting	<62	62 (28)
Design	**Housing:** galvanized sheet steel **Cover:** galvanized/electrostatically powder coated (200 °C)								
PWS 3202 SS Indoor/Outdoor Rated (NEMA Type 12/3R/4/4x)	12358310048	115	60	77.6	0.694	6	1/2"push in fitting	<62	62 (28)
	12358320048	230	50/60	66.2	0.312	6	1/2"push in fitting	<62	62 (28)
Design	**Housing:** stainless steel 304 **Cover:** stainless steel 304								

Additional Data		PWS 3202	PWS 3202 SS	
Control range (adjustable)	SC	+ 50 … + 104 / + 10 … + 45; factory setting + 95 / + 35		°F / °C
Rated flow rate		2 (450)		gpm (L/H)
Maximum water pressure	PSIG	145 (10)		PSIG (BAR)
NEMA Type rating		12/3R/4/4x		against enclosure when properly installed

For additional technical data, drawings and manuals.
www.pfannenbergusa.com

Available Models:



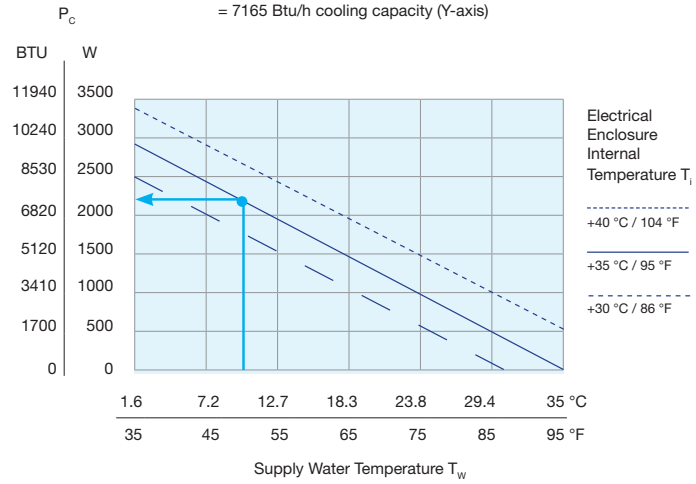
Light Grey
Indoor/Outdoor Rated
(NEMA Type 12/3R/4/4x)

Stainless Steel
Indoor/Outdoor Rated
(NEMA Type 12/3R/4/4x)

Cooling Capacity Performance Curve

How to use this chart

Example: @ 95 °F (ambient, X-axis), @ 95 °F (internal, diagonal lines) = 7165 Btu/h cooling capacity (Y-axis)



PWS 3302 | AIR/WATER HEAT EXCHANGERS

12283 Btu/h

The PWS 3302 Advantage Series Air/Water Heat Exchangers offer over 12000 Btu/h cooling capacity and are ideal for harsh ambient conditions. Requiring only a cool liquid source and power. Available with either powder coated or stainless steel covers. Need a cool liquid source? Pair this unit with one of our packaged chillers.

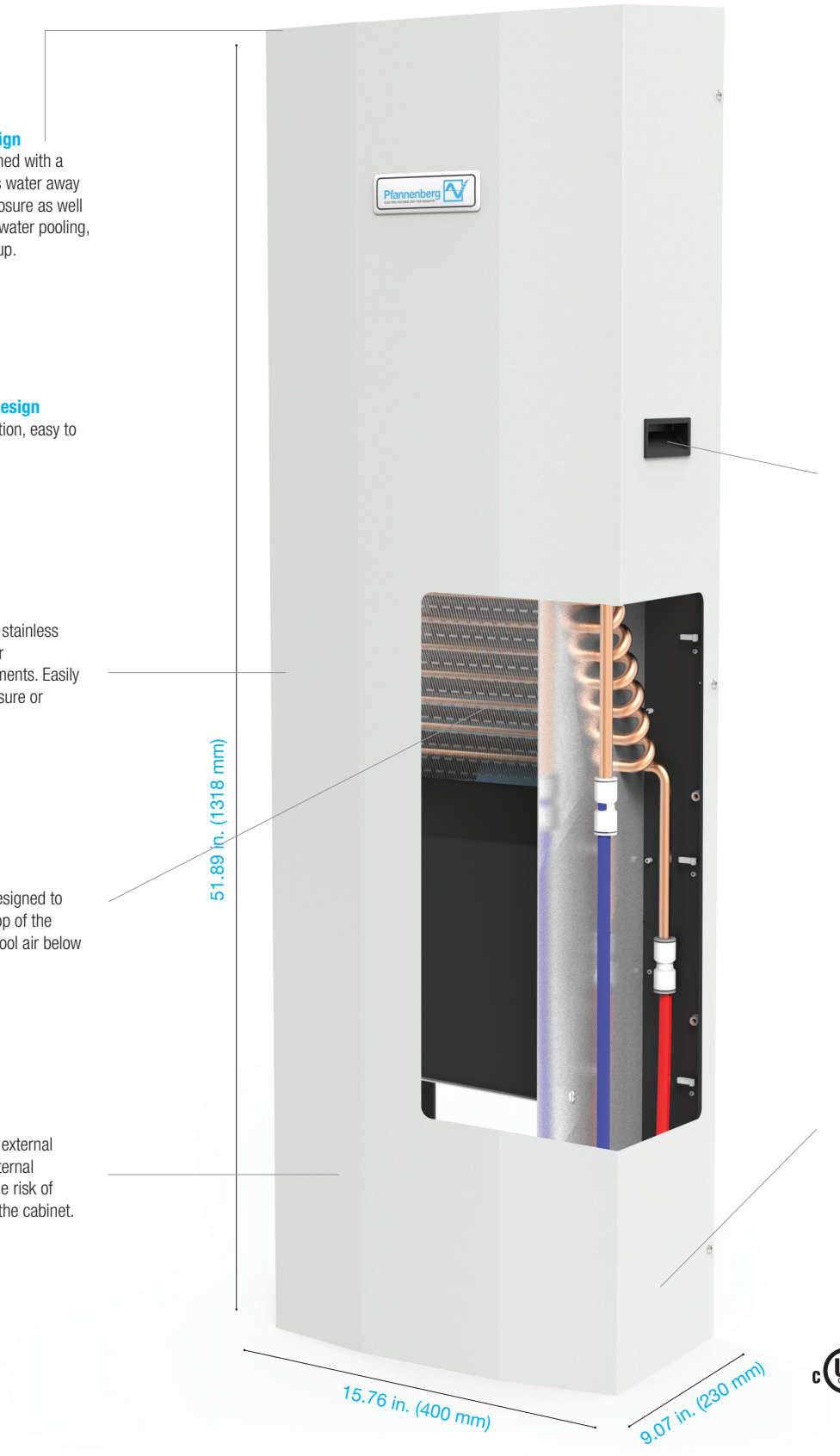
Washdown Roof Design
Metal covers are designed with a sloped top which sheds water away from the electrical enclosure as well as eliminates potential water pooling, corrosion and ice buildup.

Optimized Internal Design
Smart engineered solution, easy to service and maintain.

Rugged Design
Powder coated steel or stainless steel cover designed for manufacturing environments. Easily painted to match enclosure or machine.

Long Airflow Path
Heat exchangers are designed to draw hot air from the top of the enclosure and deliver cool air below the components.

Closed Loop Design
Designed to isolate the external ambient air from the internal air circuit eliminating the risk of contaminants entering the cabinet.



Push to Connect Fittings
Hydronic connectors that supports quick connection to 1/2 inch O.D. hose or 1/2 inch I.D. hose with included adapter. Unlike other units that have rigid permanent connections.

Lifting Handles
Handles are mounted on the cover for easy handling and installation.

Intelligent Control of Water Flow
The adjustable electronic thermostat permits precise control of the electrical enclosure temperature by regulating the coolant flow which is activated by a solenoid valve. This regulates the coolant flow to minimize coolant waste and increase energy-efficiency.

Condensation Management
Physical barriers allow for condensation to be collected and drained from the system with zero intrusion into the cabinet.

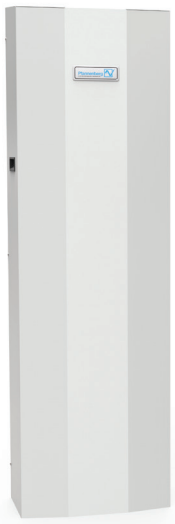
PWS 3302 Series 12283 Btu/h (3600 W) Air to Water Heat Exchangers

Model Number	Part Number	Voltage (VAC)	Frequency (Hz)	Power Consumption (W)	Nominal (Run) Current (A)	Fuse (maximum)	Fluid Connection	Noise Level (according to EN ISO 3741) dB(A)	Dry Weight (without packaging) lb (kg)
PWS 3302 Indoor/Outdoor Rated (NEMA Type 12/3R/4)	12358410045	115	60	77.9	0.698	6	1/2"push in fitting	<62	66 (30)
	12358420045	230	50/60	59	0.311	6	1/2"push in fitting	<62	66 (30)
Design	**Housing:** galvanized sheet steel **Cover:** electrostatically powder coated RAL 7035 (light grey); for ANSI 61 grey use part no. ending in ...251								
PWS 3302 SS Indoor/Outdoor Rated (NEMA Type 12/3R/4/4x)	12358410048	115	60	77.9	0.698	6	1/2"push in fitting	<62	66 (30)
	12358420048	230	50/60	59	0.311	6	1/2"push in fitting	<62	66 (30)
Design	**Housing:** stainless steel 304 **Cover:** stainless steel 304								

Additional Data		PWS 3302	PWS 3302 SS	
Control range (adjustable)	SC	+ 50 … + 104 / + 10 … + 45; factory setting + 95 / + 35		°F / °C
Rated flow rate		2 (450)		gpm (L/H)
Maximum water pressure	PSIG	145 (10)		PSIG (BAR)
NEMA Type rating		12/3R/4/4x		against enclosure when properly installed

For additional technical data, drawings and manuals.
www.pfannenbergusa.com

Available Models:



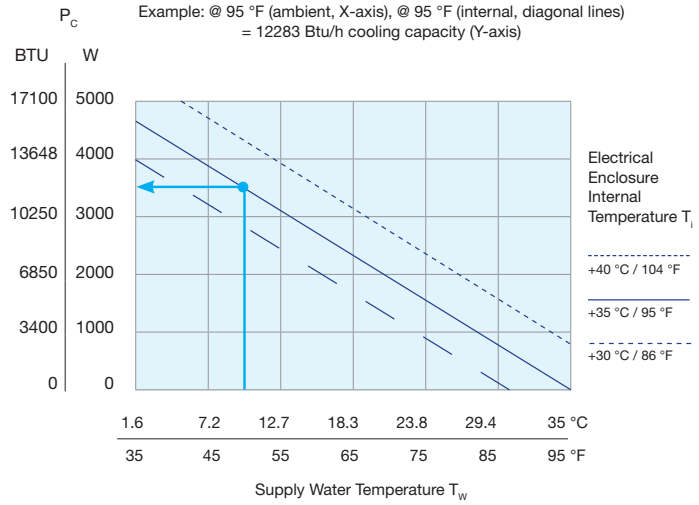
Light Grey
Indoor/Outdoor Rated
(NEMA Type 12/3R/4/4x)

Stainless Steel
Indoor/Outdoor Rated
(NEMA Type 12/3R/4/4x)

Cooling Capacity Performance Curve

How to use this chart

Example: @ 95 °F (ambient, X-axis), @ 95 °F (internal, diagonal lines) = 12283 Btu/h cooling capacity (Y-axis)



PWS 3502 | AIR/WATER HEAT EXCHANGERS

21496 Btu/h

The PWS 3502 Advantage Series Air/Water Heat Exchangers offer over 20000 Btu/h cooling capacity and are ideal for harsh ambient conditions. Requiring only a cool liquid source and power. Available with either powder coated or stainless steel covers. Need a cool liquid source? Pair this unit with one of our packaged chillers.

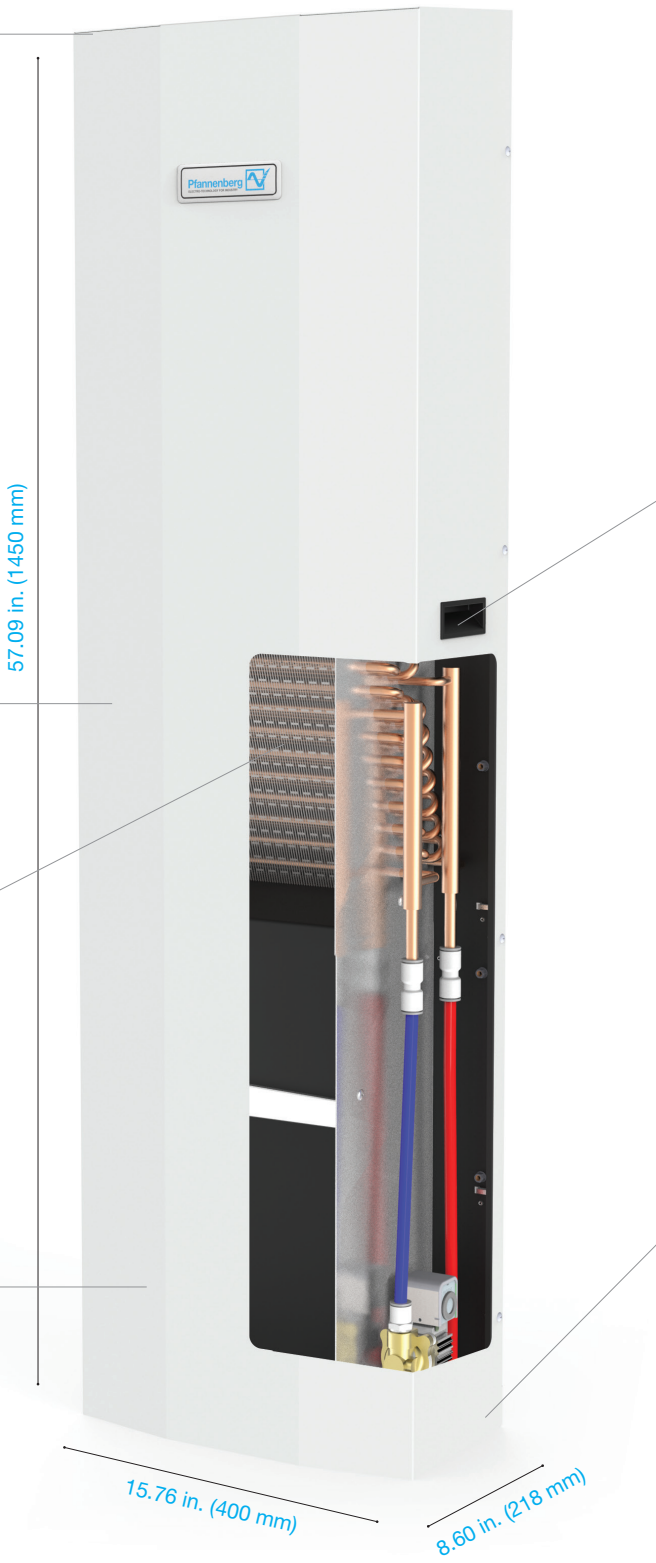
Washdown Roof Design
Metal covers are designed with a sloped top which sheds water away from the electrical enclosure as well as eliminates potential water pooling, corrosion and ice buildup.

Optimized Internal Design
Smart engineered solution, easy to service and maintain.

Rugged Design
Powder coated steel or stainless steel cover designed for manufacturing environments. Easily painted to match enclosure or machine.

Long Airflow Path
Heat exchangers are designed to draw hot air from the top of the enclosure and deliver cool air below the components.

Closed Loop Design
Designed to isolate the external ambient air from the internal air circuit eliminating the risk of contaminants entering the cabinet.



Push to Connect Fittings
Hydronic connectors that supports quick connection to 1/2 inch O.D. hose or 1/2 inch I.D. hose with included adapter. Unlike other units that have rigid permanent connections.

Lifting Handles
Handles are mounted on the cover for easy handling and installation.

Intelligent Control of Water Flow
The adjustable electronic thermostat permits precise control of the electrical enclosure temperature by regulating the coolant flow which is activated by a solenoid valve. This regulates the coolant flow to minimize coolant waste and increase energy-efficiency.

Condensation Management
Physical barriers allow for condensation to be collected and drained from the system with zero intrusion into the cabinet.

PWS 3502 Series 21496 Btu/h (6300 W) Air to Water Heat Exchangers

Model Number	Part Number	Voltage (VAC)	Frequency (Hz)	Power Consumption (W)	Nominal (Run) Current (A)	Fuse (maximum)	Fluid Connection	Noise Level (according to EN ISO 3741) dB(A)	Dry Weight (without packaging) lb (kg)
PWS 3502 Indoor/Outdoor Rated (NEMA Type 12/3R/4)	12358510045	115	60	215.6	1.89	6	1/2"push in fitting	<64	73 (33)
	12358520045	230	50/60	192.5	.982	6	1/2"push in fitting	<64	73 (33)
Design	**Housing:** galvanized sheet steel **Cover:** electrostatically powder coated RAL 7035 (light grey); for ANSI 61 grey use part no. ending in ...251								
PWS 3502 SS Indoor/Outdoor Rated (NEMA Type 12/3R/4/4x)	12358510048	115	60	215.6	1.89	6	1/2"push in fitting	<64	73 (33)
	12358520048	230	50/60	192.5	.982	6	1/2"push in fitting	<64	73 (33)
Design	**Housing:** stainless steel 304 **Cover:** stainless steel 304								

Additional Data		PWS 3502	PWS 3502 SS	
Control range (adjustable)	SC	+ 50 … + 104 / + 10 … + 40; factory setting + 95 / + 35		°F / °C
Rated flow rate		2 (450)		gpm (L/H)
Maximum water pressure	PSIG	145 (10)		PSIG (BAR)
NEMA Type rating		12/3R/4/4x		against enclosure when properly installed

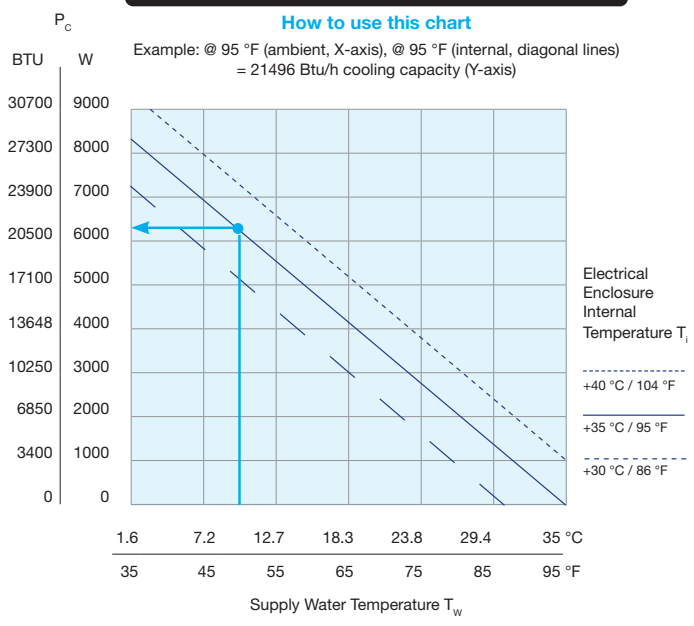
For additional technical data, drawings and manuals.
www.pfannenbergusa.com

Available Models:

Light Grey
Indoor/Outdoor Rated
(NEMA Type 12/3R/4/4x)

Stainless Steel
Indoor/Outdoor Rated
(NEMA Type 12/3R/4/4x)

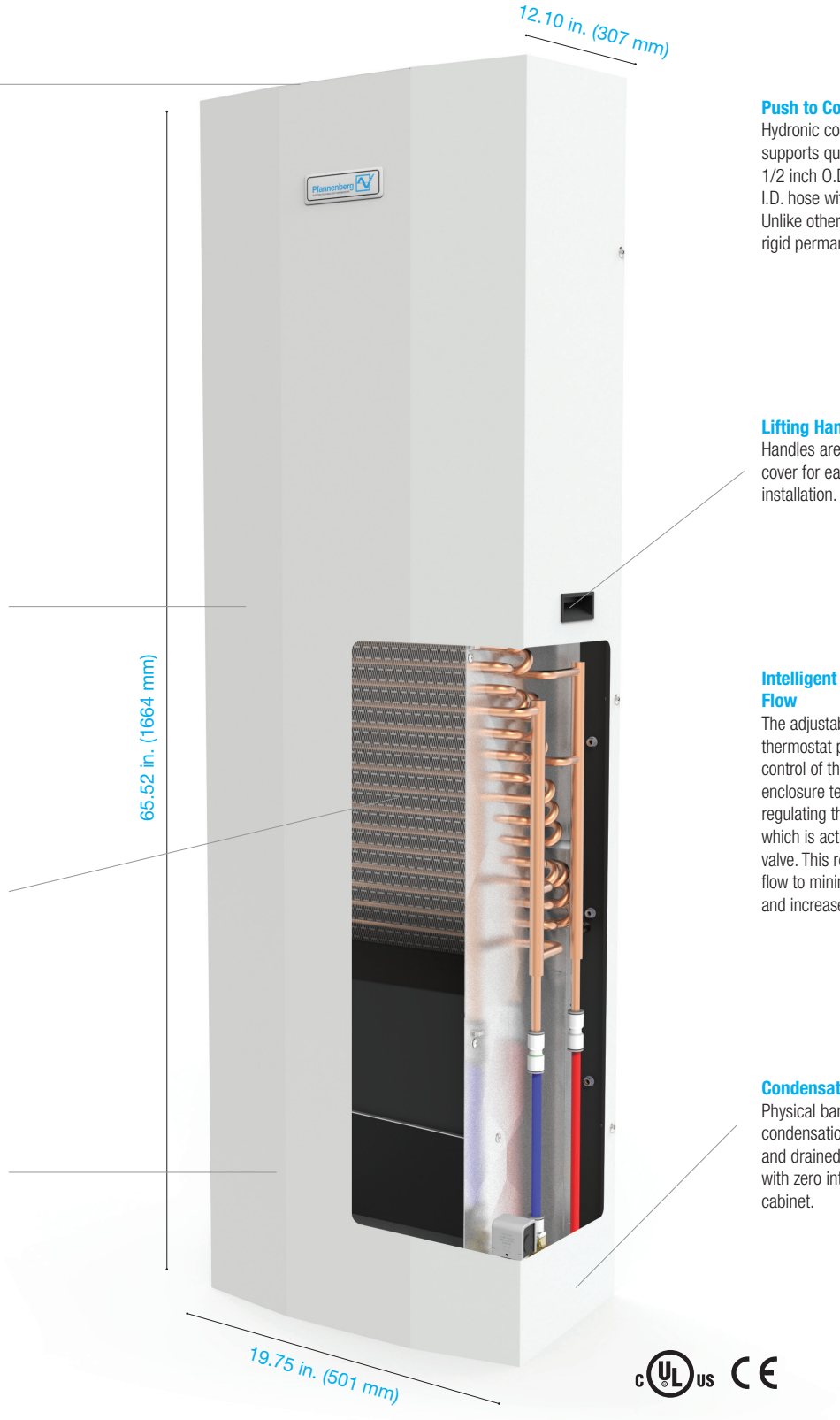
Cooling Capacity Performance Curve



PWS 31002 | AIR/WATER HEAT EXCHANGERS

34121 Btu/h

The PWS 31002 Advantage Series Air/Water Heat Exchangers are our largest units offering over 34000 Btu/h cooling capacity and are ideal for harsh ambient conditions. Requiring only a cool liquid source and power. Available with either powder coated or stainless steel covers. Need a cool liquid source? Pair this unit with one of our packaged chillers.



Washdown Roof Design
Metal covers are designed with a sloped top which sheds water away from the electrical enclosure as well as eliminates potential water pooling, corrosion and ice buildup.

Optimized Internal Design
Smart engineered solution, easy to service and maintain.

Rugged Design
Powder coated steel or stainless steel cover designed for manufacturing environments. Easily painted to match enclosure or machine.

Long Airflow Path
Heat exchangers are designed to draw hot air from the top of the enclosure and deliver cool air below the components.

Closed Loop Design
Designed to isolate the external ambient air from the internal air circuit eliminating the risk of contaminants entering the cabinet.

Push to Connect Fittings
Hydronic connectors that supports quick connection to 1/2 inch O.D. hose or 1/2 inch I.D. hose with included adapter. Unlike other units that have rigid permanent connections.

Lifting Handles
Handles are mounted on the cover for easy handling and installation.

Intelligent Control of Water Flow
The adjustable electronic thermostat permits precise control of the electrical enclosure temperature by regulating the coolant flow which is activated by a solenoid valve. This regulates the coolant flow to minimize coolant waste and increase energy-efficiency.

Condensation Management
Physical barriers allow for condensation to be collected and drained from the system with zero intrusion into the cabinet.

PWS 31002 Series 34121 Btu/h (10000 W) Air to Water Heat Exchangers

Model Number	Part Number	Voltage (VAC)	Frequency (Hz)	Power Consumption (W)	Nominal (Run) Current (A)	Fuse (maximum)	Fluid Connection	Noise Level (according to EN ISO 3741) dB(A)	Dry Weight (without packaging) lb (kg)
PWS 31002 Indoor/Outdoor Rated (NEMA Type 12/3R/4)	12358720045	230	50/60	163	.71	6	1/2"push in fitting	<66	117 (53)
	12358730045	460	50/60	150	.67	6	1/2"push in fitting	<66	126 (57)
Design	**Housing:** galvanized sheet steel **Cover:** electrostatically powder coated RAL 7035 (light grey); for ANSI 61 grey use part no. ending in ...251								
PWS 31002 SS Indoor/Outdoor Rated (NEMA Type 12/3R/4/4x)	12358720048	230	50/60	163	.71	6	1/2"push in fitting	<66	117 (53)
	12358730048	460	50/60	150	.67	6	1/2"push in fitting	<66	126 (57)
Design	**Housing:** stainless steel 304 **Cover:** stainless steel 304								

Additional Data		PWS 31002	PWS 31002 SS	
Control range (adjustable)	SC	+ 50 … + 104 / + 10 … + 40; factory setting + 95 / + 35		°F / °C
Rated flow rate		5 (1150)		gpm (L/H)
Maximum water pressure	PSIG	145 (10)		PSIG (BAR)
NEMA Type rating		12/3R/4/4x		against enclosure when properly installed

For additional technical data, drawings and manuals.
www.pfannenbergusa.com

Available Models:

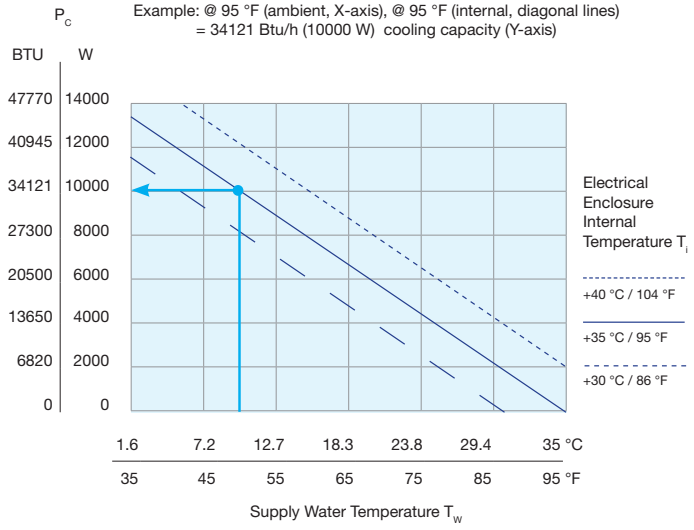
Light Grey
Indoor/Outdoor Rated
(NEMA Type 12/3R/4/4x)

Stainless Steel
Indoor/Outdoor Rated
(NEMA Type 12/3R/4/4x)

Cooling Capacity Performance Curve

How to use this chart

Example: @ 95 °F (ambient, X-axis), @ 95 °F (internal, diagonal lines) = 34121 Btu/h (10000 W) cooling capacity (Y-axis)



PWS 7102 | AIR/WATER HEAT EXCHANGERS

3242 Btu/h

The PWS 7000 Series Air/Water Heat Exchangers are our legacy models. The 7102 model offers the narrowest footprint of any of our air/water heat exchangers. Need a cool liquid source? Pair this unit with one of our packaged chillers.

PWS 7102 (3242 Btu/h) Air to Water Heat Exchangers

Model Number	Part Number	Voltage (VAC)	Frequency (Hz)	Power Consumption (W)	Nominal (Run) Current (A)	Fuse (maximum)	Fluid Connection	Noise Level (according to EN ISO 3741) dB(A)	Dry Weight (without packaging) lb (kg)
PWS 7102 Indoor/Outdoor Rated (NEMA Type 12/3R/4)	12351010005	115	60	95	0.80	4	1/2"OD Hose Barb	<48	16.5 (7.5)
	12351020005	230	50/60	84	.52	4	1/2"OD Hose Barb	<48	16.5 (7.5)
Design	**Housing:** galvanized sheet steel **Cover:** electrostatically powder coated RAL 7035 (light grey); for ANSI 61 grey use part no. ending in ...251								
PWS 7102 SS Indoor/Outdoor Rated (NEMA Type 12/3R/4/4x)	12351010008	115	60	95	0.80	4	1/2"OD Hose Barb	<48	16.5 (7.5)
	12351020008	230	50/60	84	.52	4	1/2"OD Hose Barb	<48	16.5 (7.5)
Design	Housing: stainless steel 304 Cover: stainless steel 304								

PWS 7332 | AIR/WATER HEAT EXCHANGERS

10748 Btu/h

The PWS 7332 is compatible with existing popular PWS 7000 series units still in the field. Installation is service friendly requiring no elaborate reworking of the mounting cutout. Need a cool liquid source? Pair this unit with one of our packaged chillers.

PWS 7332 Series (10748 Btu/h) Air to Water Heat Exchangers

Model Number	Part Number	Voltage (VAC)	Frequency (Hz)	Power Consumption (W)	Nominal (Run) Current (A)	Fuse (maximum)	Fluid Connection	Noise Level (according to EN ISO 3741) dB(A)	Dry Weight (without packaging) lb (kg)
PWS 7332 Indoor/Outdoor Rated (NEMA Type 12/3R/4)	12353010005	115	60	453	3.8	16	1/2"OD Hose Barb	54	51 (23)
	12353020005	230	50/60	295/385	1.3/1.95	6	1/2"OD Hose Barb	54	51 (23)
Design	**Housing:** galvanized sheet steel **Cover:** electrostatically powder coated RAL 7035 (light grey); for ANSI 61 grey use part no. ending in ...251								
PWS 7332 SS Indoor/Outdoor Rated (NEMA Type 12/3R/4/4x)	12353010008	115	60	453	3.8	16	1/2"OD Hose Barb	54	51 (23)
	12353020008	230	50/60	295/385	1.3/1.95	6	1/2"OD Hose Barb	54	51 (23)
Design	Housing: stainless steel 304 Cover: stainless steel 304								

ACCESSORIES

External Condensate Evaporation System-KV PTC

External condensate evaporator for the accumulated condensed water.

Suitable for ...	Part number
115 - 230 V 50 / 60 Hz	18314000001

THE BEST LIQUID-COOLED SOLUTION:
Combined Chillers and PWS Air/Water Heat Exchangers

Combining Pfannenberg Chillers and PWS Air/Water heat exchangers is the best solution for recirculating water cooling systems for control enclosures when a liquid cooling source is not available on site. Dedicated to harsh environments, this solution is the perfect match to save energy, reduce maintenance and prevent downtime.

Pfannenberg Water-Cooled Solutions.

Our water-cooled solutions are designed with durable components to ensure the effectiveness and longevity of the critical cooling process at hand. Our chillers, in combination with our air/water heat exchangers, offer decisive advantages:

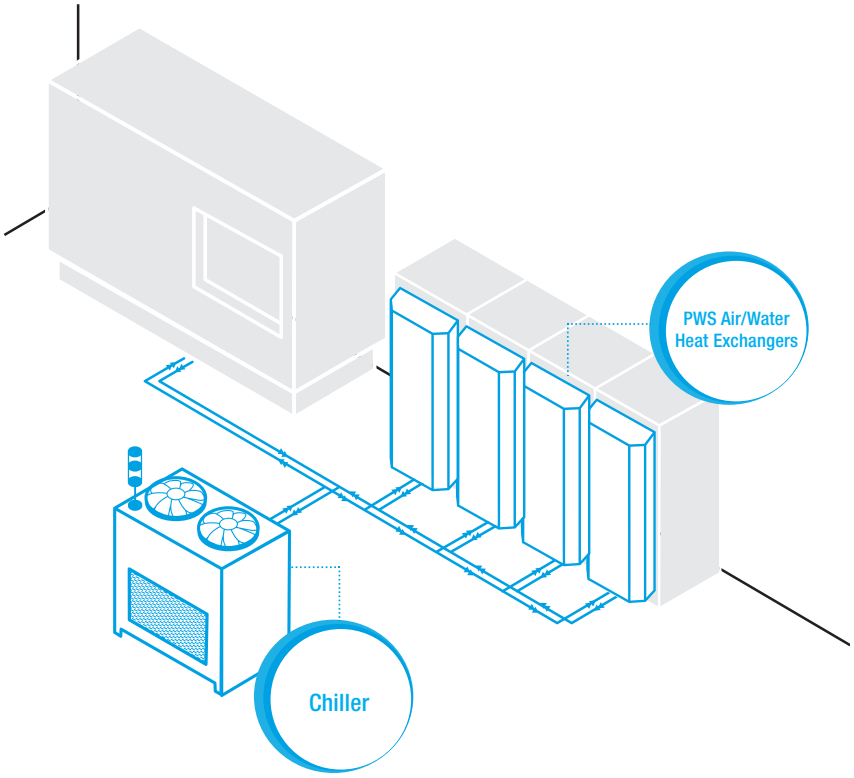
- In applications where power losses must not enter the surrounding space.
- If aggressive ambient air restricts the use of conventional cooling units.
- If a very high IP system is required (up to IP 65).
- If maintenance-free cooling units are necessary.

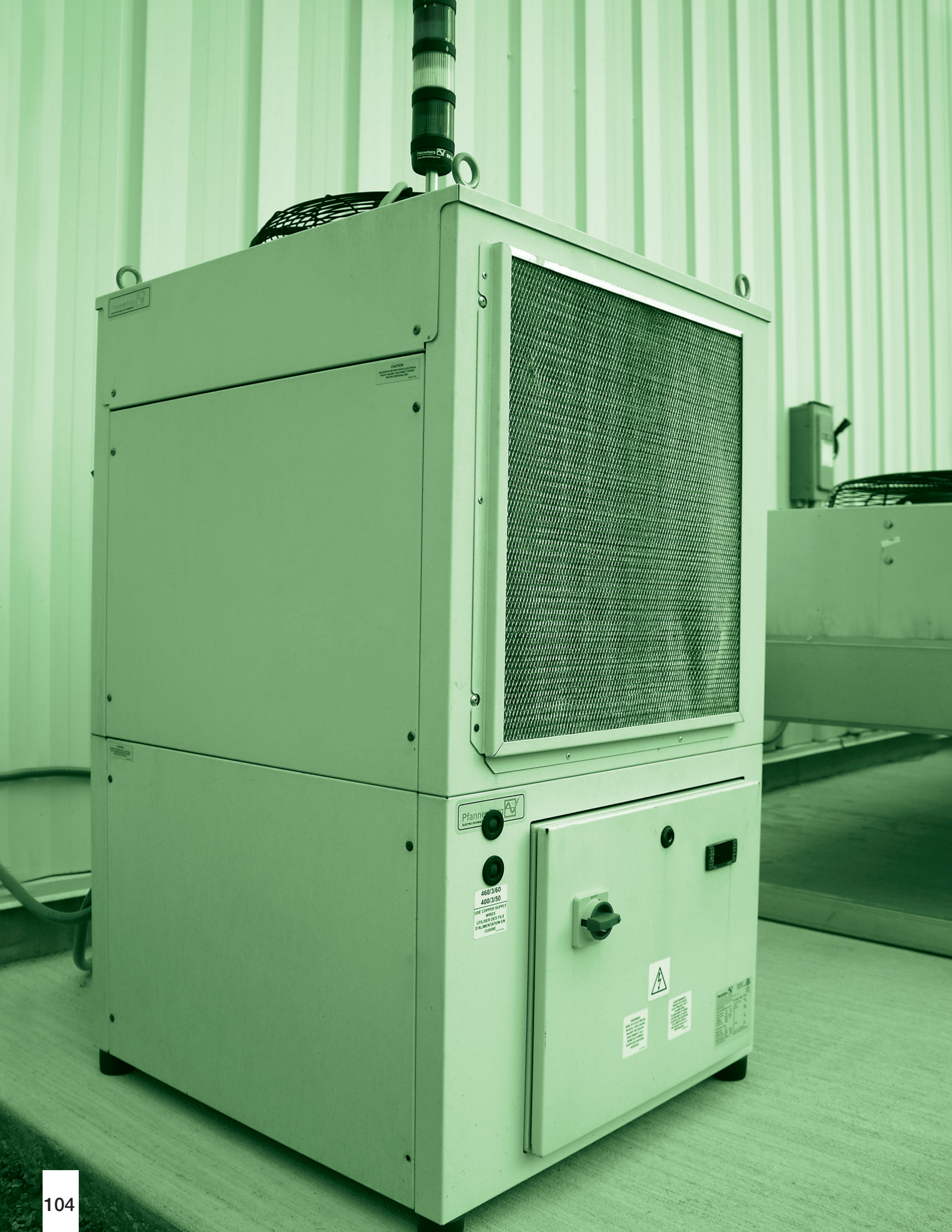
Water-cooled solutions provide the most efficient enclosure cooling when ambient conditions are at their worst.

The Advantages of Closed-Loop Liquid Cooling

With Manufacturing space at a premium, machine packages have become smaller and liquid cooling has emerged as the most efficient and economical means of removing process heat.

Liquid cooling is especially well adapted to hot, dirty environments, where it provides a method of removing the heat from the machine and not contributing additional heat back into the environment.




460/3/60
400/3/50
USE COPPER SUPPLY WIRES
UTILISER DES FILS D'ALIMENTATION EN CUIVRE

CCE and EB Series Packaged Chillers

Closing the Loop for Industrial Fluid Cooling Applications

Pfannenberg offers a versatile range of packaged chillers, ranging in sizes from less than ½ Ton to 30 Tons insuring the proper capacity available for most applications. These packaged chillers are ready to use requiring only piping and power to install as part of your solution for process cooling applications - we'll even provide the coolant. Ethylene & Propylene Glycol coolants, with proper corrosion inhibitors are available in a variety of packaging options – both full strength and pre-mixed.

Each chiller model includes the pump, tank, refrigeration system and controls required for simple installation and reliable, efficient operation.

Our knowledgeable applications staff is always on hand to discuss the application and to make sure that a proper selection is made. **With our many available equipment options we can easily customize our standard chillers to meet specific application requirements.**

These chillers are a perfect match for Pfannenberg Series PWS Air/Water Heat Exchangers when a local source of cooling is not available.

PRODUCT EXPERTISE

Service Friendliness

We are committed to minimum MTTR (Mean Time To Repair) and the shortest time needed to replace units. Our service-friendly accessibility, standardized parts and a carefully thought out plug-and-play concept minimizing your repair costs and downtime make this possible.

Energy Efficiency

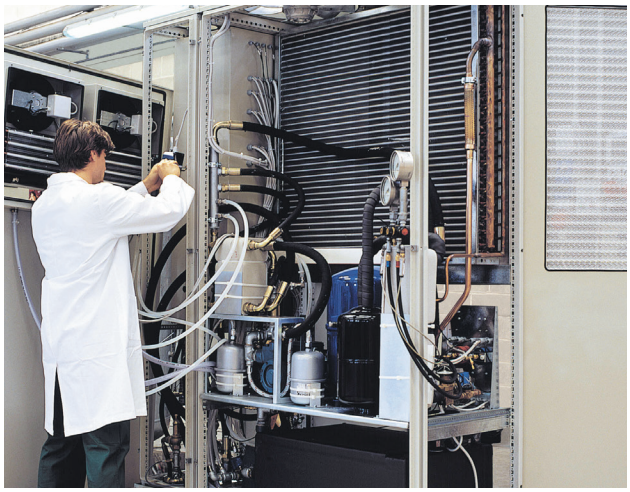
Our chillers achieve top grades in energy consumption. They can be centralized, using a single chiller that serves multiple cooling needs, or decentralized where each application or machine has its own chiller. Each approach has its advantages. It is also possible to have a combination of both centralized and decentralized chillers, especially if the cooling requirements are the same for some applications or points of use.

Reliability

Our customers demand performance that offers dependability and reliability they can count on. We are committed to the highest level of design and manufacturing accuracy to make sure your chiller performs as expected. More than 20 years of experience in the field of re-cooling and the use of high-quality components ensure optimum long-term stability and top MTBF (Mean Time Between Failures).

Design

Whether our products are cooling oil or water, Pfannenberg has well-developed global expertise in the design and manufacture of packaged refrigeration products for industrial environments. Pfannenberg's process chillers optimize three basic areas to perform as one: the refrigeration circuit, the hydraulic circuit and controls.

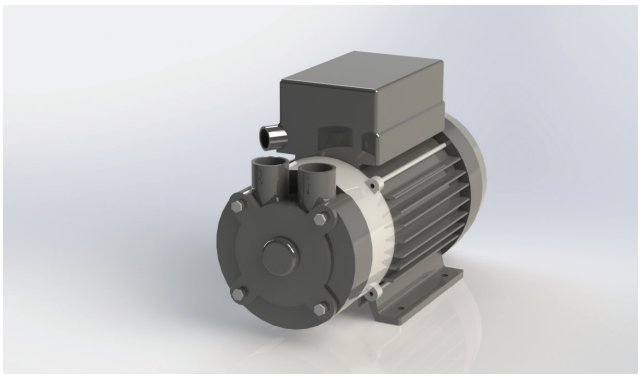


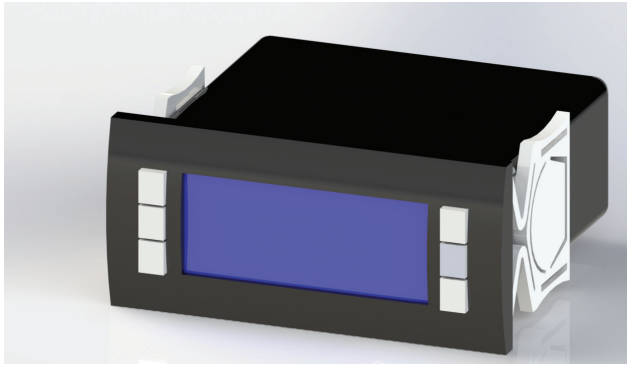
Refrigeration System

Since the natural tendency of heat is to move from a higher temperature medium to one with a lower temperature, the chiller's mechanical refrigeration system is needed to maintain cool fluid temperatures. This assures a constant cooling circuit. Pfannenberg's engineers carefully select the components of this system to maximize performance, efficiency & serviceability. Industrial compressors & fans, extended surface evaporators & condensers, along with the right refrigerant for the application, are seamlessly integrated to achieve the optimum result.

Hydraulic System

Circulating and storing the chilled fluid is the function of the hydraulic circuit. Our standard chillers include high-quality hydraulic components that are selected to support a wide range of applications. Pumps provide flexibility in terms of both flow rate and pressure capabilities. The use of non-ferrous materials for wetted parts promotes longer pump life, avoiding premature failure.





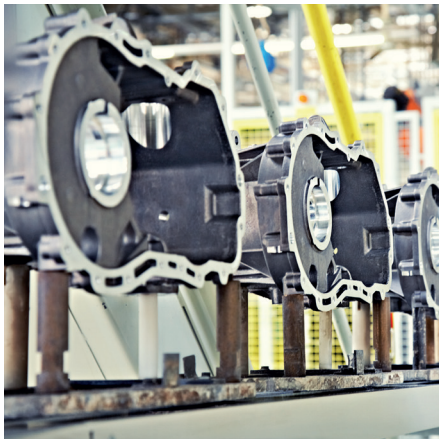
Control System

Simple & effective controls allow the mechanical components to work together to meet various operating requirements. Digital controllers are connected to sensors that measure temperature, and switches that confirm pressure, flow and level. This provides the continuous logical instructions needed to deliver reliable liquid cooling & circulation. **Options are also available to provide remote monitoring and/or control.**

Whatever the application

Heat is a single common by-product of today‘s manufacturing machines that include the advanced automation technology required for both high speed operation and high precision. Components such as spindle motors, variable frequency drives, laser and x-ray sources all require cooling to operate properly and reliably – most often in very adverse manufacturing environments.

With manufacturing space at a premium, machine packages have become smaller and liquid cooling has emerged as the most efficient and economical means of removing process heat. Liquid cooling is especially well adapted to hot, dirty environments, where it provides a method of removing the heat from the machine and not contributing additional heat back into the environment.



...the perfect solution

Pfannenberg‘s extensive background providing cooling for a wide variety of machines including machining centers, printing presses, wood working machines, welding systems, packaging machines and food processing machines to name a few, allows us to apply proven cooling technology to new applications.

Our application engineering team works to match our standard products with as many applications as possible and also works closely with our product engineers to offer custom solutions when required. This continuous interaction allows continuous product development that is always in keeping with the needs of the market.

Why Choose a Packaged Chiller System?

Pfannenberg's packaged chillers are versatile and ideal for applications that have cooling requirements from less than a half a ton up to 30 tons. All chillers are shipped as factory packaged systems requiring only field power and piping to provide recirculated chilled coolant to virtually any process.

CCE & EB 2.0 Series
Packaged Air Cooled Chillers

Packaged and ready to use, Pfannenberg chillers require only piping & power to install a solution for process cooling applications – we'll even provide the coolant.

- Each chiller model includes the pump, tank, refrigeration system and controls required for simple installation and reliable, efficient operation.
- Model sizes ranging from a ½ Ton up to 30 Tons insure that the proper capacity is available for most applications.
- Ethylene & propylene glycol coolants with proper corrosion inhibitors are available in a variety of packaging options – both full strength and pre-mixed.
- Equipment options are available to easily customize standard chillers to meet specific application requirements.
- Our knowledgeable applications staff is always on hand to discuss the application and to make sure that a proper selection is made.
- These chillers are a perfect match for Pfannenberg Series PWS Air/Water Heat Exchangers when a local source of cooling is not available.

Selecting the Correct Pfannenberg Chiller

Use the chart below to help you select the proper chiller for your application. For questions please consult with the factory or visit our website for the latest charts, diagrams, drawings and sizing materials.

STEP 1
WHAT IS THE HEAT LOAD?

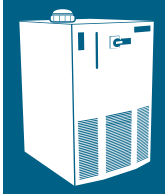
Determine the heat load. There are several ways to determine the heat load depending on the application. Understanding the process is essential to calculating an accurate heat load.

STEP 2
COOLANT TYPE, TEMPERATURE & FLOW RATE

Determine the coolant, its target temperature and the flow rate that the chiller must provide to the process. This is determined by the method from which the heat is transferred from the process to the coolant and the type of coolant being used. For example, water has different characteristics than oil.

STEP 3
IDENTIFY INSTALLATION ENVIRONMENT

In what environment will the chiller be installed? Indoor applications for example can see high temperatures and dirty atmospheres, while outdoor installations can experience both low and high ambient temperatures. This can effect chiller sizing and require accessories such as air filters, sump heaters, etc.



STEP 4
USE CHILLER PERFORMANCE CURVES

Now use the chiller performance curves available* to select a chiller model that meets or exceeds the required capacity based on the chilled water supply temperature and the highest expected ambient air temperature. Consideration should be given to the safety margin of the application with respect to available frame sizes to maximize the value of the chiller selection.

STEP 5
CHECK PUMP PERFORMANCE CURVES

Check the pump performance curves available* to ensure that the pump will provide enough pressure at the design flow rate to satisfy the application. Some liquid cooled systems have small coolant flow paths or longer distances that can have higher than average pressure losses.

STEP 6
FINAL SELECTION

Finally, consider that the remaining application requirements such as power characteristics, control options, footprint, agency listing, color, etc. are met by the selected standard Pfannenberg chiller. Choosing a standard chiller will bring you greater reliability, easier service with common spare parts and global support.

CHILLER QUICK SELECTION CHART

Type	Cooling Capacity Btu/h	Rated Voltage	Dimensions W x D x H Inches (mm)	Approvals					Page
				UL 508A	CSA	EAC	CE	ETL	
CCE 6301	8200	230 1~	19.4 x 23.62 x 22.5 (493 x 600 x 572)	●			●		110
CCE 6401	12000	400 3~/460 3~	26.61 x 23.62 x 26.27 (610 x 483 x 711)	●			●		110
CCE 6601	22000	400 3~/460 3~	26.61 x 23.62 x 26.27 (610 x 483 x 711)	●			●		110
EB 2.0 80 WT	27000	400 3~/460 3~	23.62 x 29.94 x 54.17 (600 x 760 x 1376)	●	●	●	●		112
EB 2.0 95 WT	32500	400 3~/460 3~	23.62 x 29.94 x 54.17 (600 x 760 x 1376)	●	●	●	●		112
EB 2.0 140 WT	47750	400 3~/460 3~	29.96 x 33.68 x 60.40 (761 x 855 x 1534)	●	●	●	●		112
EB 2.0 160 WT	54500	400 3~/460 3~	29.96 x 33.68 x 60.40 (761 x 855 x 1534)	●	●	●	●		112
EB 250 WT	98900	380 or 460V	31 x 48 x 56 (787 x 1219 x 1422)	●	●		●	●	114
EB 300 WT	112000	380 or 460V	31 x 66 x 56 (787 x 1676 x 1422)	●	●		●	●	114
EB 400 WT	151500	400 or 460V	31 x 66 x 56 (787 x 1676 x 1422)	●	●		●	●	114
EB 450 WT	191000	380 or 460V	30 x 74 x 57 (762 x 1880 x 1448)	●	●		●	●	114

● available

Application Example

DID YOU KNOW?

In addition to water and Glycol coolants, Pfannenberg chillers can also be used to chill oil for various applications such as cutting machines, drill presses and hydraulic circuits.

Contact Pfannenberg today to discuss the requirements of your specific project.

CCE CHILLERS | CCE 6301 / CCE 6401 CCE 6601

8,000 - 22,000 BTU/hr

FEATURES

Programmable smart controller • Non-ferrous hydraulic circuit • R134a environmental friendly refrigerant • Micro-channel condenser • Compact size and easy installation • Suitable for water or water/glycol mix • System alarms for accurate maintenance

Smart Controller

- Sets min/max water temperature with alarm.
- Equipped with a programmable control for precise ± 2F temperature regulation of the cooling medium.

Fluid Flow Protection

- Flow switch will trigger alarm if flow is too low, protecting the equipment being cooled.
- Electric tank level switch connected to controller protects pump from damage caused by running dry.

System Protection

- Cooled with water or water/glycol mixtures.
- Internal hydraulic bypass protects pump by ensuring minimum flow and protects the application by limiting the system pressure.
- Filter alarm on chiller detects decrease of performance due to air contamination.

Ease of Installation

- Can be mounted on top of the enclosure.
- Crane lifting ready for moving with eye-bolts.

Easy Fluid Access

- Reliable, easy to read level indication.
- Open-loop design for easy fluid monitoring.
- Top-up access in the front with gauge level on top.
- Manometer to read fluid loop pressure.

Non-Ferrous Design

- Non-Ferrous tank and piping reduces corrosion.
- Stand-alone chiller has steel housing with thick powder coating.
- Robust industry standard with eyebolts.

**Integration of project-specific additional components is available on request.

Note: The size listed on this page is for the CCE 6401 - 6601 Models.
Please see the chart on the opposite page for dimensions of our CCE 6301 Model.

For additional technical data, drawings and manuals. www.pfannenbergusa.com

CCE 6301 - 6601 Series Packaged Compact Chillers (8,000 - 22,000 Btu/h)

Model Number	Part Number RAL 7035 (Light Grey)	Voltage (V/Ph/Hz)	Capacity (Btu/h)	Capacity (kW)	Capacity (Tons)	Nominal Current (A)	Tank Volume (gal)	Coolant Connections (NPT-F)	Width in (mm)	Depth in (mm)	Height in (mm)	Dry Weight lb (kg)
CCE 6301 Indoor Rated	42130245011	230 / 1 / 50-60	8,200	2.4	.68	8	3	1/2"	19.4 (493)	23.62 (600)	22.5 (572)	158 (72)
CCE 6401 Indoor Rated	42130355012	460 / 3 / 50-60	12,000	3.5	1	7	7	3/4"	24 (610)	19 (483)	28 (711)	240 (109)
CCE 6601 Indoor Rated	42130655011	460 / 3 / 50-60	22,000	6.5	1.8	10	7	3/4"	24 (610)	19 (483)	28 (711)	251 (114)

Additional Data	CCE 6301	CCE 6401	CCE 6601
Ambient temp. range	Min: 15°C / 59°F . . . Max: 45°C / 113°F		
Recommended Medium	Water / Glycol – 80% / 20%		
Medium temperature (outlet)	55°F to 95°F (13°C to 35°C); Factory Setting 64°F (18°C)		
Target value tolerance (°F)	±2		
Refrigerant type	R134A		
Max power consumption (kW)	1.5 / 1.7	2.5 / 3.1	4.1 / 5
Max current consumption (A)	7.5 / 8	6.5 / 7	9.5 / 10
Max Noise level @ 50 Hz (EN ISO 3741)	62 dB (A)		
Protection system according to EN 60529	Indoor use only (IP 54)		
Design	**Housing/Cover:** powder coated RAL 7035 (light gray)		

* Water @ 64°F CWS / 90°F Ambient / 60Hz

For additional technical data, drawings and templates visit www.pfannenbergusa.com

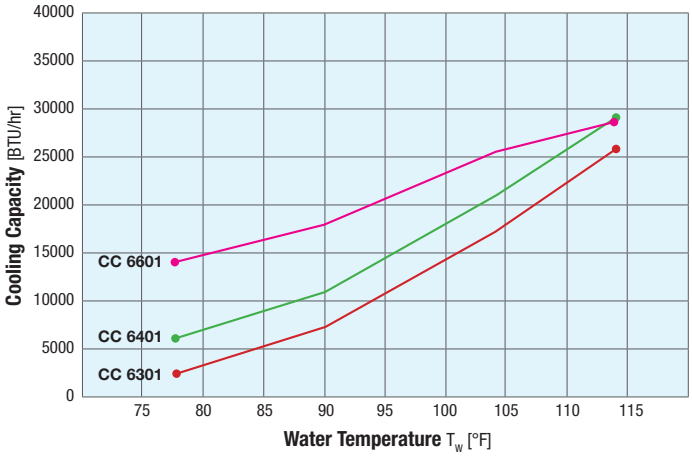
Subject to technical amendments and misprints.

1 Ton = 12,000 Btu/h = 3517 Watts

CCE 6401 - 6601
Indoor Rated

CCE 6301
Indoor Rated

Cooling Capacity Performance Curve



CCE 6301 — 60Hz Tamb 77°F
CCE 6401 — 60Hz Tamb 77°F
CCE 6601 — 60Hz Tamb 77°F

EB CHILLERS | EB 80 WT / EB 95 WT / EB 140 WT / EB 160 WT

27,000 - 54,500 BTU/hr

- Precision fluid temperature control up to ±2°F for accurate process cooling through smart controller, and custom designed refrigerant system protects the compressor and extends service life.
- Early alarm and auto shut-off protects process equipment from low/no fluid flow through integrated electric tank level switch and flow switch connected to smart controller.
- Open loop design with non-ferrous component prevents corrosion.
- Suitable for use with water or water/glycol mixture with easy level monitoring.
- Compact size and easy installation with optional accessories to meet application needs.

Standard Features

- Hot gas by-pass refrigerant circuit
- Programmable smart controller
- Internal hydraulic bypass circuit
- Electrical tank level switch
- Coolant flow switch
- Non-ferrous hydraulic circuit
- Wired remote control on/off ready
- R410a environmental friendly refrigerant
- Micro-channel condenser

Fluid Flow Protection

- Recirculates fluid during low demand periods through built-in hydraulic bypass valve.
- Electric tank level switch connected to controller prevents pump from running dry.
- Flow switch will trigger alarm if flow is too low, protecting the equipment being cooled.

Temperature Accuracy and Cooling Load Management

- Hot gas bypass design with on/off fan controls temperature to within ±2°F.
- Manages load and protects compressor from over-working, which extends service life.

Ease of Installation

- Comes standard with plinth to elevate chiller if installed on damp/wet area.
- Fork truck ready for moving with eye-bolt.

Smart Controller

- Sets min/max water temperature with alarm.
- Temperature differential control with external sensor.
- Error message display with quick reference.

Easy Fluid Access

- Open-loop design for easy fluid monitoring.
- Top-up access in the front with gauge level.
- Manometer to read fluid loop pressure.

Non-Ferrous Design

Non-Ferrous tank and piping reduces corrosion.

Note: The size listed on this page is for the EB 80/95 models.
Please see the chart on the opposite page for dimensions of our EB 140/160 models.

508A

For additional technical data, drawings and manuals. www.pfannenbergusa.com

EB 80/95/140/160 WT Series Packaged Chillers (27,000 - 54,500 Btu/h)

Model Number	Part Number RAL 7035 (Light Grey)	Voltage (V/Ø/Hz)	Capacity* (Btu/h)	(kW)	(Tons)	Nominal Current (A)	Tank Volume (gal)	Coolant Connections (NPT-F)	Width in (mm)	Depth in (mm)	Height in (mm)	Dry Weight lb (kg)
EB 80 WT Indoor Rated	42030805015	460 / 3 / 50-60	27,000	8	2.25	8.3	13	3/4"	23.62 (600)	29.94 (760)	54.17 (1376)	330 (150)
EB 95 WT Indoor Rated	42030955030	460 / 3 / 50-60	32,500	9.5	2.7	9.7	13	3/4"	23.62 (600)	29.94 (760)	54.17 (1376)	352 (160)
EB 140 WT Indoor Rated	42031405022	460 / 3 / 50-60	47,750	14	4	11.9	19	1"	29.96 (761)	33.68 (855)	60.40 (1534)	396 (180)
EB 160 WT Indoor Rated	42031605026	460 / 3 / 50-60	54,500	16	4.5	15.1	19	1"	29.96 (761)	33.68 (855)	60.40 (1534)	418 (190)

Additional Data	EB 80	EB 95	EB 140	EB 160
Ambient temp. range	Min: -5°C / 23°F . . . Max: 45°C / 113°F			
Medium	Water / Glycol – 80% / 20%			
Medium temperature (outlet)	55°F to 95°F (13°C to 35°C); Factory Setting 64°F (18°C)			
Target value tolerance (°F)	±2			
Refrigerant type	R410A			
Max power consumption (kW)	3.3 / 4.6	3.8 / 4.6	5.3 / 11.3	7.1 / 14.1
Max current consumption (A)	7.6 / 8.3	8.5 / 9.7	6.8 / 11.9	18.9 / 15.1
Max Noise level @ 60 Hz (EN ISO 3741)	72 dB (A)			
Protection system according to EN 60529	Indoor use only (IP 54)			
Design	**Housing/Cover:** powder coated RAL 7035 (light gray)			

* Water @ 64°F CWS / 90°F Ambient / 60Hz

For additional technical data, drawings and templates visit www.pfannenbergusa.com

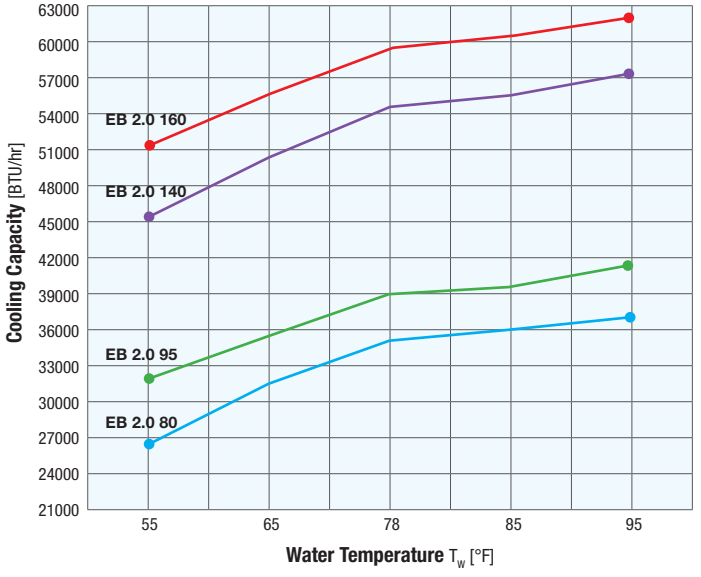
Subject to technical amendments and misprints.

1 Ton = 12,000 Btu/h = 3517 Watts

EB 80-95 WT
Indoor Rated

EB 140-160 WT
Indoor Rated

Cooling Capacity Performance Curve



EB 2.0 80 — 60Hz Tamb **77°F**
EB 2.0 95 — 60Hz Tamb **77°F**
EB 2.0 140 — 60Hz Tamb **77°F**
EB 2.0 160 — 60Hz Tamb **77°F**

EB 2.0 ECO CHILLERS | EB 65 ECO EB 95 ECO EB 140 ECO

20,473 - 47,770 BTU/hr

Pfannenberg's EB 2.0 ECO chillers take advantage of the inverter technology to ensure a direct response to cooling demand. This keeps both energy consumption and operating cost to a minimum, while the range of cooling capacity and durability of the units is increased significantly. Designed for indoor/outdoor use, they are perfectly suited for heat dissipation in combination with passive indoor cooling systems (PWS/PWW).

Standard Features

- Hot gas by-pass refrigerant circuit
- Programmable smart controller
- Internal hydraulic bypass circuit
- Electrical tank level switch
- Coolant flow switch
- Non-ferrous hydraulic circuit
- Wired remote control on/off ready
- R410a environmental friendly refrigerant
- Micro-channel condenser

Indoor/Outdoor Unit
Designed to work in ambient conditions from -4°F to 113°F (-20°C to 45°C). Pfannenberg EB 2.0 Eco Chillers can be used for outdoor applications or to simply remove the heat from your factory: combined with a PWS/PWW heat exchanger, the EB 2.0 Eco Chiller can provide the right cooling in any harsh production environment.

Higher Temperature Precision
Rapid and accurate adjustment of cooling capacity to the actual load leads to a significant higher stability of the medium temperature. (±0,1 K).

Conformity to Current Regulations
ErP Directive and F-gas regulation are important boundary conditions for your decision. For more information visit our website: www.pfannenberg.com/f-gas

Silent Operation
The EC fans ensures the optimum airflow any time avoiding constantly high noise emissions.

Energy and Cost-Saving
Variable speed technology (compressor and fan) combined with efficient refrigerant R410A ensure a reduced energy consumption. The inverter compressor increases operating flexibility (50-100%) while reducing the electrical consumption by up to 65%.

Maximum Efficiency in Partial-Load Operation
The chiller automatically adapts to your application so you always have the right dimensioning and high efficiency at any workload.

Success on the Field
Our product design is based on customized units that have proven their performance in industrial applications all over the world.

Note: The size listed on this page is for the EB 80/95 models.
Please see the chart on the opposite page for dimensions of our EB 140/160 models.

508A

For additional technical data, drawings and manuals. www.pfannenbergusa.com

EB 65/95/140 ECO CHILLERS (20,473 - 47,770 BTU/hr)

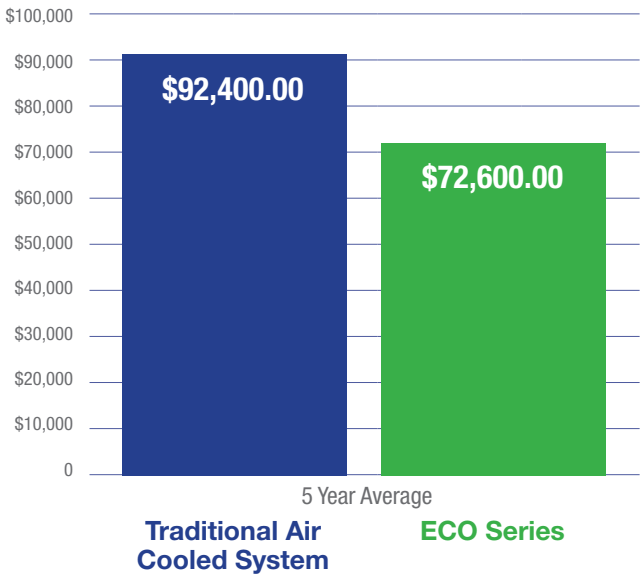
Model Number	Part Number RAL 7035 (Light Grey)	Rated Voltage AC 50 / 60 (V ±10 %)	Cooling Capacity W64 / A90 (with pump) 60 Hz (BTU/hr)	(kW)	(Ton)	Flow Rate of Pump (GPM)	Pump Pressure (psig)	Tank Volume (gal)	Connections (medium) IG (BSP)	Width in (mm)	Depth in (mm)	Height in (mm)	Dry Weight lb (kg)
EB 65 ECO Indoor/Outdoor	42030655006	400 3~ / 460 3~	20,473	6.5	1.8	5	44	19	1"	23.81 (605)	30 (762)	65.98 (1676)	330 (150)
EB 95 ECO Indoor/Outdoor	42030955006	400 3~ / 460 3~	32,414	9.5	2.7	7	44	19	1"	23.81 (605)	30 (762)	65.98 (1676)	374 (170)
EB 140 ECO Indoor/Outdoor	42031405010	400 3~ / 460 3~	47,770	14	4	10	44	19	1"	23.81 (605)	30 (762)	71.49 (1816)	396 (180)

Additional Data	EB 65 ECO	EB 95 ECO	EB 140 ECO
Ambient temp. range	Min: -20°C / -4°F . . . Max: 45°C / 113°F		
Medium	Water / Glycol – 80% / 20%		
Medium temperature (outlet)	55°F to 95°F (13°C to 35°C); Factory Setting 64°F (18°C)		
Target value tolerance (°k)	±0.1k		
Refrigerant type	R410A		
Max noise level @ 60 Hz (EN ISO 3741)	78 dB		
Application environment	Indoor / Outdoor		
Design	**Housing/Cover:** powder coated RAL 7035 (light gray)		

For additional technical data, drawings and templates visit www.pfannenbergusa.com

Subject to technical amendments and misprints.

CUMULATIVE COST OVER 5 YEARS



	TRADITIONAL AIR COOLED SYSTEM	ECO SERIES
KW/HR Cost	.12	.12
Operational Hrs/Yr	5500	5500
KW-Power Consumption of System	28	22
Cost of Standard System Annually	**$18,480**	**$14,520**
5 Year Cost	**$92,400**	**$72,600**

EB 250 - 450 WT | CHILLERS

27,700 - 55,900 W / 94,500 - 190,800 Btu/h / 7.9 - 15.9 TONS

The EB 250-450 WT Series packaged chillers include a variety of frame sizes and capacities to fulfill a wide range of applications. The unique, vertical design allows warm air from the condenser to be discharged conveniently upward.

High Airflow for Efficient Operation

Axial fans deliver high volume airflow across the condenser for effective dissipation of waste heat while fan cycling provides maximum refrigeration efficiency and energy conservation.

High Efficiency, Long Life Compressors

Heavy-duty reciprocating or scroll type compressors provide high efficiency and long service life. Crankcase heaters are included with all models.

Designed to Handle Tough Environments

Large, finned-tube condensers provide a high level of energy efficiency and fouling resistance.

Large Surface Area Brazed-plate Evaporators for Low Energy Usage

With large heat transfer surfaces in a compact size, brazed-plate evaporators offer efficient operation for both heat transfer and coolant flow, resulting in reduced pumping energy. For optimum performance, externally equalized thermal expansion valves are utilized to continuously manage refrigerant flow based on load. (not pictured)

Flexible Mounting

Channel bases are included to facilitate lift truck handling and permanent foundation mounting. Optional casters are available.

Durable, Weatherproof Construction

Galvanized steel frame and panels are polyester powder coated in light grey (RAL 7035) to resist corrosion.

Long Service Life & Wider Range of Performance

Centrifugal coolant pumps offer a wide range of flow and pressure capabilities to fulfill a variety of pipe-run requirements. Stainless steel construction eliminates corrosion and problems surrounding coolant contamination.

Continuous Display Info & Remote Operation

The feature-rich, plug in controller with digital display provides ease of setup and monitoring of all operating conditions including warning and alarm indications. Remote start/stop capability and general alarm contacts are provided. An optional wired remote control pad with 400 ft. range is available.

Protected Electronics and Controls Support Safe & Efficient Operation

Electrical controls for safe and efficient operation include high, low and fan control refrigerant pressure switches, coolant flow and freeze protection. All sensitive devices are built to UL508a standards.

***Note: The size listed on this page is for the EB 250 WT model.** Please see the chart on the opposite page for dimensions of our EB 300 - EB 450 WT Models. For certifications contact factory.

EB 250 - 450 WT Series (94,500 - 190,800 Btu/h) Packaged Compact Chillers

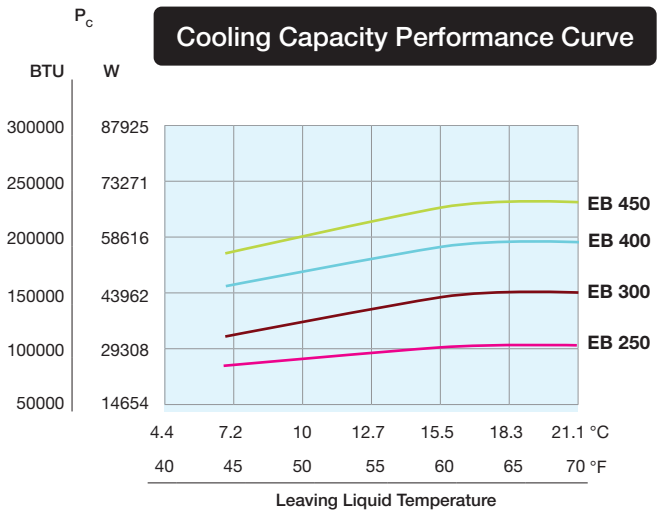
Model Number	Part Number RAL 7035 (Light Grey)	Voltage (V/Ph/Hz)	Capacity* (Btu/h)	(kW)	(Tons)	Nominal Current (A)	Tank Volume (gal)	Coolant Connections (NPT-F)	Width in (mm)	Depth in (mm)	Height in (mm)	Dry Weight lb (kg)
EB 250 WT Indoor/Outdoor Rated	42532505320	460/3/60	94,500	27.7	7.9	23.1	18.5	1	31 (787)	48 (1219)	56 (1422)	822 (400)
EB 300 WT Indoor/Outdoor Rated	42533005320	460/3/60	112,000	32.8	9.3	28.1	31.7	1-1/2	31 (787)	66 (1676)	56 (1422)	926 (420)
EB 400 WT Indoor/Outdoor Rated	42534005320	460/3/60	151,500	44.4	12.6	36.4	31.7	1-1/2	31 (787)	66 (1676)	56 (1422)	1323 (600)
EB 450 WT Indoor/Outdoor Rated	42534505320	460/3/60	190,800	55.9	15.9	37	68	1-1/2	30 (762)	74 (1880)	57 (1448)	1446 (656)
Design	Rugged construction - (G90) galvanized steel with polyester powder coat finish											

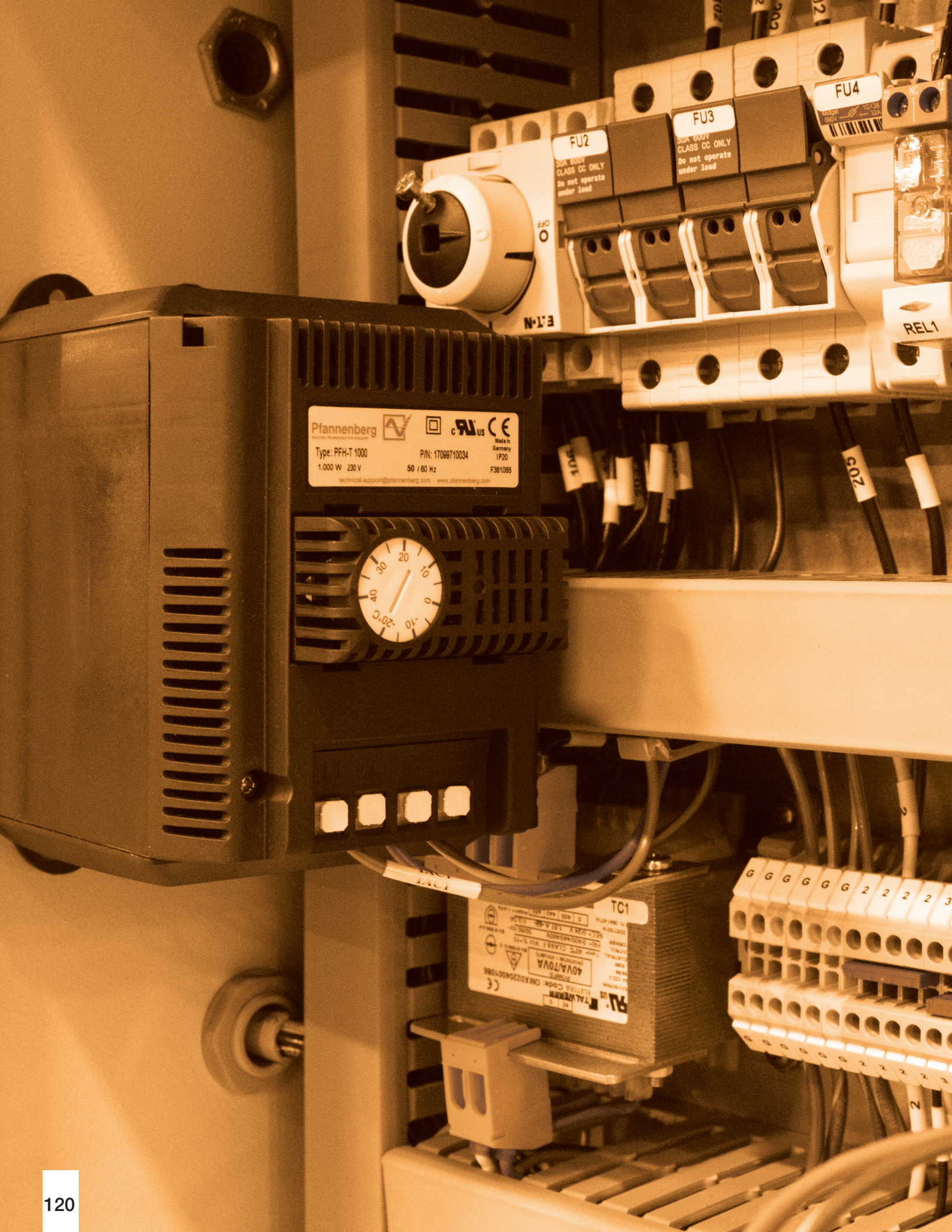
* Water @ 64°F CWS / 90°F Ambient / 60Hz

For additional technical data, drawings and manuals.
www.pfannenbergusa.com

1 Ton = 12,000 Btu/h = 3517 Watts

EB 250 - 450 WT
Indoor / Outdoor Rated




FU2
FU3
FU4
REL1
Pfannenberg
Type: PFH-T 1000
P/N: 17099710034
1.000 W 230 V
50 / 60 Hz
Made in Germany
IP20
F381066
TC1

Heaters, Thermostats and Hygrostats

Additional Protection for Your Electronics

The formation of condensation is one of the biggest dangers for electrical enclosures. As long as they are working under load, their own warmth prevents water from condensing. If the process is switched off, the electronics cool down. This is where our control cabinet heaters (radiant heaters and fan heaters) provide additional protection for your electronics.

We offer a wide variety of performance class control cabinet heaters which are complemented by thermostats and hygrostats. Combined as a solution, they ensure that the temperature inside the control cabinet is always correct and that the formation of condensation is prevented.

The control of Filterfans® by the FLZ 530 Thermostat represents an intelligent solution for control of the fan, preventing excessive energy usage and reducing the maintenance cost associated with the frequency of replacing filters.

Additionally using a thermostat or hygrostat results in greater reliability of your production process:

- Pinpoint distribution and constant temperature in the control cabinet.
- Reduced energy consumption and optimization of the efficiency of the heaters.
- Additional savings on energy, materials and time.

Pfannenberg's heaters, thermostats and hygrostats expand Pfannenberg's protection to additional outdoor applications such as ATMs, Kiosks, Ticket Machines etc.

THERMAL MANAGEMENT OF ENCLOSURES

Monitoring Temperature, Heating & Controlling Condensate

Pfannenberg's Heaters, Thermostats and Hygrostats detect and keep ambient conditions above dew point to avoid the harmful effects of condensation on your electronics. They can be used as a standalone product or in partnership with our Filterfan® and Cooling Unit product lines.

FLH Heaters

This type of heating is ideal for use in larger electrical enclosures. They have an integrated fan that assists the natural convection and provides fast and even distribution of the heat in the electrical enclosure.

The fan heaters are used in combination with a thermostat or hygrostat, for the avoidance of excessively low temperatures or excessively high humidity in the electrical enclosure and also help to avoid the formation of corrosion.

PFH-T Fan Heaters with Thermostat

The PFH-T fan heater with thermostat is designed to protect electronics from the effects of low temperatures such as corrosion, freezing or condensation, which can damage critical components within a control enclosure.

FLZ Thermostats

Thermostats are used as temperature controllers and, therefore, for the control of Filterfans® or electrical enclosure heaters. They are available with N.C. (normally closed) / N.O. (normally open) and changeover contacts. In combination with control cabinet heaters you can ensure, besides temperature control, that the control cabinet is 'artificially' dehumidified, in particular in outdoor applications. That means that the temperature is kept above the dew point so that no water condenses out of the air, which could lead to short circuits due to the formation of condensation.

Hygrostats

Hygrostats switch on electrical enclosure heaters or Filterfans® when a preset relative humidity is exceeded. The relative humidity is kept above the dew point and the condensation of water on electrical components and the corrosion of unprotected sheet metal is prevented. A new electronic combination device unites thermostat and hygrostat in one housing.

For additional technical data, drawings and templates. www.pfannenbergusa.com

HEATERS AND THERMOSTATS QUICK SELECTION CHART

Type	Heater Power W	Rated voltage	Dimensions WxLxH inches (mm)	Approvals				Page
				UR	cUR	CSA	CE	
PFH-T Series Compact Fan Heaters								
PFH-T 200	200	115, 230 VAC	3.46 (88) x 5.47 (139) x 5.59 (142)	●	●	●	●	120
PFH-T 400	400	115, 230 VAC	3.46 (88) x 5.47 (139) x 5.59 (142)	●	●	●	●	120
PFH-T 650	650	115, 230 VAC	3.46 (88) x 5.47 (139) x 5.59 (142)	●	●	●	●	120
PFH-T 800	800	115, 230 VAC	3.46 (88) x 5.47 (139) x 5.59 (142)	●	●	●	●	120
PFH-T 1000	1000	115, 230 VAC	3.46 (88) x 5.47 (139) x 5.59 (142)	●	●	●	●	120
PFH-T 1200	1200	230 VAC	3.46 (88) x 5.47 (139) x 5.59 (142))	●	●	●	●	120
FLH-TF Series Fan Heaters with Thermostat								
FLH-TF 125	125	115 VAC, 230 VAC	5 x 4.1875 x 5.5 (127 x 106 x 140)	●			●	120
FLH-TF 200	200	115 VAC, 230 VAC	5 x 4.1875 x 5.5 (127 x 106 x 140)	●			●	120
FLH-TF 400	400	115 VAC, 230 VAC	7 x 6.1875 x 7.5 (178 x 157 x 191)	●			●	120
FLH-TF 800	800	115 VAC, 230 VAC	7 x 6.1875 x 7.5 (178 x 157 x 191)	●			●	120
PRH-M Series Mini-Radiant Heaters								
PRH 010-M	10	100 - 250 VAC	1.77 (45) x 2.95 (75) x 1.16 (29.5)	●	●		●	122
PRH 020-M	20	100 - 250 VAC	1.77 (45) x 2.95 (75) x 1.16 (29.5)	●	●		●	122
PRH 030-M	30	100 - 250 VAC	1.77 (45) x 2.95 (75) x 1.16 (29.5)	●	●		●	122
FLH Series Mini Radiant & Fan Heaters								
FLH 030W	30	100 - 250 VAC	3.94 (100) x 2.76 (70) x 1.97 (50)	●	●		●	122
FLH 045W	45	100 - 250 VAC	3.94 (100) x 2.76 (70) x 1.97 (50)	●	●		●	122
FLH 060W	60	100 - 250 VAC	6.89 (175) x 2.76 (70) x 1.97 (50)	●	●		●	122
FLH 075W	75	100 - 250 VAC	6.89 (175) x 2.76 (70) x 1.97 (50)	●	●		●	122
FLH 100W	100	100 - 250 VAC	6.89 (175) x 2.76 (70) x 1.97 (50)	●	●		●	122
FLH 150W	150	100 - 250 VAC	9.84 (250) x 2.76 (70) x 1.97 (50)	●	●		●	122
FLH 250	250	115, 230 VAC	7.34 (186.5) x 3.34 (85) x 4.09 (104)	●	●		●	122
FLH 400	400	115, 230 VAC	8.92 (226.5) x 3.34 (85) x 4.09 (104)	●	●		●	122
FLZ Series Thermostats								
FLZ 510	-	100 - 250 VAC / Max. 30 W DC	2.52 x 1.46 x 1.81 (64 x 37 x 46)	●	●		●	124
FLZ 520	-	100 - 250 VAC / Max. 30 W DC	2.83 x 1.57 x 1.42 (72 x 40 x 36)	●	●	●	●	124
FLZ 530	-	100 - 250 VAC / Max. 30 W DC	2.83 x 1.57 x 1.42 (72 x 40 x 36)	●	●	●	●	124
FLZ Series Twin Thermostats								
FLZ 541	-	100 - 250 VAC / Max. 30 W DC	3.17 x 2.32 x 1.5 (80.5 x 59 x 38)	●	●		●	126
FLZ 542	-	100 - 250 VAC / Max. 30 W DC	3.17 x 2.32 x 1.5 (80.5 x 59 x 38)	●	●		●	126
FLZ 543	-	100 - 250 VAC / Max. 30 W DC	3.17 x 2.32 x 1.5 (80.5 x 59 x 38)	●	●		●	126
FLZ Series Hygrostats								
FLZ 600	-	115, 230 VAC / Max. 30 W DC	2.52 x 1.46 x 1.81(64 x 37 x 46)	●	●		●	128
FLZ 610	-	115, 230 VAC / Max. 30 W DC*	3.17 x 2.32 x 1.5 (80.5 x 59 x 38)	●	●		●	128

* See p.129 for more information

● available

PFH-T | COMPACT FAN HEATER WITH THERMOSTAT

200 W - 1200 W

NEW

The PFH-T Series Compact Fan Heaters with thermostat feature our **new touch safe design.** Ideal for maintaining precise temperatures required for the proper function of electronics, while also protecting equipment from damaging condensation caused by changes in temperature or humidity. **Available in 6 models.**

Flexible Mounting Options
Unit can be direct mounted or connected to a standard DIN rail **without tools** using the included snap fastener.

Touch-Safe Outer Housing
Well insulated ABS high-temperature resistant plastic housing material ensures that unit remains cool and safe to touch during operation.

Precise Temperature Control
Built in thermostat allows our heater to be set to the precise temperature required for your application.

Reduced Installation Time
Save time and money when installing or moving the unit with our UL listed quick connects.

Compact Design
Wide range for heat options from 200W to 1200W all housed in the same compact housing.

Integrated Fan
Compact fan moves air across the heater elements to provide quick and efficient heating of the enclosure.

UL Certified
Heaters are UL Recognized to NITW2 and NITW8 standards allowing for easy integration into UL 508A panels.

PTC Heater Technology
Uses a self regulating heating element designed to prevent overheating and safe operation within your application.

FLH-TF | FAN HEATER WITH THERMOSTAT

125 W - 800 W

The FLH-TF Series Fan Heaters with thermostat follow a traditional design proven to provide heat to enclosures. These heaters are designed to protect electronics from low temperatures and moisture caused by high humidity or rapid temperature changes. **Available in 4 models.**

Surface Mountable
Unit can be direct mounted within the enclosure without the need for DIN rails.

Precise Temperature Control
Easy to read built in thermostat allows our heater to be set without tools to the precise temperature required.

Integrated Fan Switch
Allows circulating fan to run continuous or only when the unit is actively heating.

Best Temperature Guaranteed
Used predominantly for the avoidance of excessively low temperatures or excessively high humidity in the control cabinet.

Standard Performances
Standard performance ratings from 125 to 800 Watts ensure that the units will be compatible with common heater requirements.

UL Certified
Heaters are UL Recognized to NITW2 and NITW8 standards allowing for easy integration into UL 508A panels.

For additional technical data, drawings and templates. www.pfannenbergusa.com

PFH-T Series (200 - 1200 W) Compact Fan Heaters

Model Number	Part Number	Voltage (VAC)	Heating performance (W)*	Frequency (Hz)	Power Consumption (W)	Airflow Volume CFM (m3/h)	Starting Current (A)	Width in (mm)	Depth in (mm)	Height in (mm)	Weight (kg)
PFH-T 200	17020715034	115	200	60	215	30 (50)	9	3.46 (88)	5.47 (139)	5.59 (142)	1.68 (.76)
	17020710034	230	200	50/60	215	30 (50)	9	3.46 (88)	5.47 (139)	5.59 (142)	1.68 (.76)
PFH-T 400	17040715034	115	400	60	415	30 (50)	15	3.46 (88)	5.47 (139)	5.59 (142)	1.68 (.76)
	17040710034	230	400	50/60	415	30 (50)	15	3.46 (88)	5.47 (139)	5.59 (142)	1.68 (.76)
PFH-T 650	17065715034	115	650	60	665	30 (50)	20	3.46 (88)	5.47 (139)	5.59 (142)	1.68 (.76)
	17065710034	230	650	50/60	665	30 (50)	20	3.46 (88)	5.47 (139)	5.59 (142)	1.68 (.76)
PFH-T 800	17080715034	115	800	60	815	30 (50)	31	3.46 (88)	5.47 (139)	5.59 (142)	1.68 (.76)
	17080710034	230	800	50/60	815	30 (50)	31	3.46 (88)	5.47 (139)	5.59 (142)	1.68 (.76)
PFH-T 1000	17099715034	115	1000	60	1015	47 (80)	25	3.46 (88)	5.47 (139)	5.59 (142)	1.68 (.76)
	17099710034	230	1000	50/60	1015	47 (80)	25	3.46 (88)	5.47 (139)	5.59 (142)	1.68 (.76)
PFH-T 1200	17099810034	230	1200	50/60	1215	47 (80)	31	3.46 (88)	5.47 (139)	5.59 (142)	1.68 (.76)
Design	**Housing:** ABS high temperature plastic										

FLH-TF Series (125 - 800 W) Fan Heaters with Thermostat

FLH-TF 125	17012515407	115	125	60	140	16 (27)	3	4 (102)	5.375 (137)	5.5 (140)	2.2 (1.0)
FLH-TF 200	17020015407	115	200	60	230	16 (27)	4.5	4 (102)	5.375 (137)	5.5 (140)	2.2 (1.0)
FLH-TF 400	17040015407	115	400	60	440	26 (44)	9	4 (102)	5.375 (137)	7.5 (191)	3.0 (1.4)
FLH-TF 800	17080015407	115	800	60	860	26 (44)	14	4 (102)	5.375 (137)	7.5 (191)	3.0 (1.4)
Design	**Housing:** aluminum metal										

***Heating performance (Ta = +68 °F/+20 °C)**
Approvals (see the Quick Selection Chart found at the beginning of this section)

For additional technical data, drawings and manuals.
www.pfannenbergusa.com

Available Models:

PFH-T
Compact Design
(NITW2, NITW8)

FLH-TF
Traditional Design
(NITW2, NITW8)

PRH-M | MINI RADIANT HEATERS

10 W - 30 W

NEW

The PRH-M Mini-Radiant Heaters are available in 3 models ranging from 10 W - 30 W. These small heaters are ideal for small outdoor enclosures, preventing condensate formation.

Easy Mounting Options
Unit can be connected to a standard DIN rail **without tools** using the included snap fastener.

Multiple Performance Ratings
The PRH-M is available in 3 different heating performance based models from 10 W to 30 W. Choose the total heat to be distributed based on your calculated requirements.

Ultra Compact Design
At just slightly over 1" wide and under 3" tall, this compact design easily installs into areas that have a limited installation space.

Durable Long-Lasting
With its rugged design, solid construction and no moving parts you can count on the PRH-M Heater to perform consistently over a long period of time.

Reduced Installation Time
The PRH-M Heater supports multiple voltage and includes a hard wired 12" (300 mm) electronic cord to easily install within the electrical enclosure.

UL Certified
Heaters are UL Recognized to NITW2 standards allowing for easy integration into UL 508A panels.

FLH | RADIANT & FAN HEATERS

30 W - 400 W

The FLH Heaters are available as a radiant heater or as a forced air heater for larger wattages. These heaters are designed to protect electronics from low temperatures and moisture caused by high humidity or rapid temperature changes.

Easy Mounting Options
Unit can be connected to a standard DIN rail **without tools** using the included snap fastener.

Heat Distribution
Our larger FLH 250 and FLH 400 Heaters include a fan to help circulate the heat in larger enclosures, ensuring quick and even distribution.

Durable Long-Lasting
With its rugged design and solid construction you can count on the FLH Heaters to perform consistently over a long period of time.

Reduced Installation Time
Save time and money when installing or moving the unit with our UL listed quick connects.

UL Certified
Heaters are UL Recognized allowing for integration into UL 508A panels.

For additional technical data, drawings and templates. www.pfannenbergusa.com

PRH-M Series (10 - 30 W) Mini Radiant (PTC) Heaters

Model Number	Part Number	Voltage (VAC)	Heating performance (W)*	Frequency (Hz)	Power Consumption (W)	Starting Current (A)	Width in (mm)	Depth in (mm)	Height in (mm)	Weight lb (kg)
PRH 010-M	17000105317	110-250	10	50/60	10	1.0	1.16 (29.5)	1.77 (45)	2.95 (75)	.19 (.09)
PRH 020-M	17000205317	110-250	20	50/60	20	1.1	1.16 (29.5)	1.77 (45)	2.95 (75)	.26 (.12)
PRH 030-M	17000305317	110-250	30	50/60	30	1.2	1.16 (29.5)	1.77 (45)	2.95 (75)	.26 (12)
Design	Black anodized Aluminum									

FLH Series (30 - 150 W) Radiant Heaters - With extruded aluminum body

FLH 030W	17003005007	110-250	30	50/60	30	1.2	2.76 (70)	1.97 (50)	3.94 (100)	.55 (.25)
FLH 045W	17004505007	110-250	45	50/60	45	1.8	2.76 (70)	1.97 (50)	3.94 (100)	.55 (.25)
FLH 060W	17006005007	110-250	60	50/60	60	2.5	2.76 (70)	1.97 (50)	6.89 (175)	.99 (.45)
FLH 075W	17007505007	110-250	75	50/60	75	4.5	2.76 (70)	1.97 (50)	6.89 (175)	1.12 (.51)
FLH 100W	17010005007	110-250	100	50/60	100	5.0	2.76 (70)	1.97 (50)	6.89 (175)	1.12 (.51)
FLH 150W	17015005007	110-250	150	50/60	150	7.5	2.76 (70)	1.97 (50)	9.84 (250)	1.7 (.77)

FLH Series (250 - 400 W) Fan Heaters - With extruded aluminum body

FLH 250	17025015007	115	250	60	260	2.2	3.35 (85)	4.09 (104)	7.34 (186.5)	2.29 (1.04)
	17025010007	230	250	50/60	260	1.1	3.35 (85)	4.09 (104)	7.34 (186.5)	2.29 (1.04)
FLH 400	17040015007	115	400	60	410	3.6	3.35 (85)	4.09 (104)	8.92 (226.5)	2.65 (1.20)
	17040010007	230	400	50/60	410	1.8	3.35 (85)	4.09 (104)	8.92 (226.5)	2.65 (1.20)
Design	Aluminum profile, brightly anodized									

***Heating performance (Ta = +68 °F/+20 °C)**
Approvals (see the Quick Selection Chart found at the beginning of this section)

For additional technical data, drawings and manuals.
www.pfannenbergusa.com

Available Models:

PRH-M
Ultra Compact Design
(Integrated Cord)

FLH
Compact & Large Designs
(Quick Connects)

FLZ 510-530 | THERMOSTATS

The FLZ 510-530 Series Thermostats are available in 3 different models. The FLZ 510 comes with a change over contact, the FLZ 520 comes with a N.C contact and the FLZ 530 comes with a N.O. contact. These are designed to work with cabinet heaters and Filterfans® to control the internal cabinet temperature.

Ultra Compact Design
At just slightly over 1.5" wide and under 3" tall, this compact design easily installs into areas that have a limited installation space.

Durable Long-Lasting
With its rugged design and solid construction you can count on the FLZ Thermostat to perform consistently over a long period of time.

Easy Mounting Options
Unit can be connected to a standard DIN rail **without tools** using the included snap fastener.

Unique Temperature Control
In combination with control cabinet heaters, they control temperature inside the control cabinet.

Models come color coded, blue dial for cooling and red dial for heating control.

Energy Savings Solution
In combination with Filterfans® the FLZ Thermostat can control the operation of the fan, turning it off and on based on a set temperature. This provides an environmental balance through energy reduction.

UL Certified for 508A Panels
Thermostats are UL Recognized allowing for integration into UL 508A panels.

*Note: The size listed on this page is for the FLZ 510. Please see the chart on the opposite page for dimensions of our FLZ 520/530 Models.

For additional technical data, drawings and templates. www.pfannenbergusa.com

FLZ 510-530 Series Thermostat

Model Number	Part Number RAL 7035 (Light Grey)	Setting Range °F / °C	Voltage (VAC)	Voltage (DC)	Type of contact	Switching Temperature difference (K)	Switching point tolerance (K)	Width in (mm)	Depth in (mm)	Height in (mm)	Weight lb (kg)
FLZ 510	17103000000	0-60 °C	100-250	max. 30 W	changeover with spring contact	1[2] / 3	± 3	1.46 (37)	1.87 (47.5)	2.34 (59.5)	.16 (.07)
	17103000010	32-140 °F	100-250	max. 30 W	changeover with spring contact	1[2] / 3	± 3	1.46 (37)	1.87 (47.5)	2.34 (59.5)	.16 (.07)
FLZ 520	17111000000	0-60 °C	100-250	max. 30 W	N.C. with spring contact[1]	<7	± 4	1.57 (40)	1.42 (36)	2.83 (72)	.11 (.05)
	17111000010	32-140 °F	100-250	max. 30 W	N.C. with spring contact[1]	<7	± 4	1.57 (40)	1.42 (36)	2.83 (72)	.11 (.05)
FLZ 530	17121000000	0-60 °C	100-250	max. 30 W	N.O. with spring contact[1]	<7	± 4	1.57 (40)	1.42 (36)	2.83 (72)	.11 (.05)
	17121000010	32-140 °F	100-250	max. 30 W	N.O. with spring contact[1]	<7	± 4	1.57 (40)	1.42 (36)	2.83 (72)	.11 (.05)

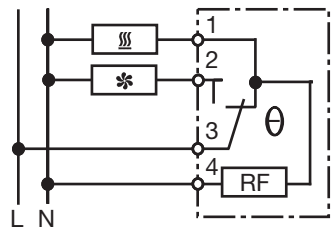
Additional Data	FLZ 510	FLZ 520	FLZ 530	
Operating temperature range	-40 ... +176 (-40 ... +80)			°F (°C)
Connection	screw terminal for cable cross-section 0.5 to 2.5 mm²			
Suitable for the operation of :	fan and heater	heater	fan	
Type of mounting	snap fastening for 35mm profile bars according to EN 60715			

[1]N.C. = normally closed / N.O. = normally open
[2]For 230 V AC operation only
Approvals (see the Quick Selection Chart found at the beginning of this section)

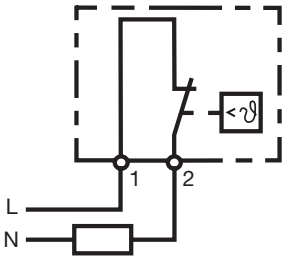
For additional technical data, drawings and templates.
www.pfannenbergusa.com

Schematics

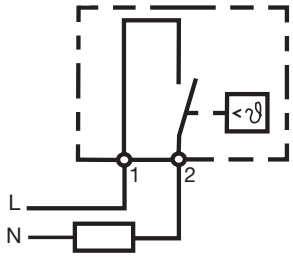
FLZ 510 1K



FLZ 520 N.C.



FLZ 530 N.O.



Available Models:

FLZ 510-530
Thermostats
(0-60 °C or 32-140 °F)

FLZ 541-543 | TWIN THERMOSTATS

The FLZ 541-543 Series Twin Thermostats are available in 3 different models. The FLZ 541 comes with N.C./N.O. contacts, the FLZ 542 comes with N.C./N.C. contacts and the FLZ 543 comes with N.O./N.O. contacts. Unlike a single thermostat with changeover contacts, connected devices can be switched to different temperature ranges to manage the internal cabinet temperature.

Ultra Compact Design
At slightly over 2" wide and just over 3" tall, this compact design easily installs into areas that have a limited installation space.

Durable Long-Lasting
With its rugged design and solid construction you can count on the FLZ Thermostat to perform consistently over a long period of time.

Easy Mounting Options
Unit can be connected to a standard DIN rail **without tools** using the included snap fastener.

Independent Controls
Control dials are color coded based on the model. The FLZ 541 comes with a red dial for controlling the heater and a blue dial for controlling the fan. The FLZ 542 comes with 2 red dials for controlling 2 heaters or a heater and alarm. The FLZ 543 comes with 2 blue dials for controlling 2 fans or a fan and alarm.

Energy Savings Solution
One unit can control two separate devices. When controlling a Filterfan® the FLZ Twin Thermostat can control the operation of the fan, turning it off and on based on a set temperature.

When also controlling a heater, the FLZ Twin Thermostat can turn the heater on and off based on enclosure temperature. This provides an environmental balance through energy reduction.

UL Certified for 508A Panels
Thermostats are UL Recognized allowing for integration into UL 508A panels.

Visit website for additional Thermostats and Hygrostats.

For additional technical data, drawings and templates. www.pfannenbergusa.com

FLZ 541-543 Series Twin Thermostats

Model Number	Part Number RAL 7035 (Light Grey)	Setting Range °F / °C	Switching contact Voltage (VAC)	(DC)	Type of contact	Switching Temperature difference (K)	Switching point tolerance (K)	Weight lb (kg)
FLZ 541	17141000000	0-60 °C	100-250	max. 30 W	N.C. / N.O. with spring contact[1]	<7	± 4	.21 (.09)
	17141000010	32-140 °F	100-250	max. 30 W	N.C. / N.O with spring contact[1]	<7	± 4	.21 (.09)
FLZ 542	17142000000	0-60 °C	100-250	max. 30 W	N.C. / N.C. with spring contact[1]	<7	± 4	.21 (.09)
	17142000010	32-140 °F	100-250	max. 30 W	N.C. / N.C. with spring contact	<7	± 4	.21 (.09)
FLZ 543	17143000000	0-60 °C	100-250	max. 30 W	N.O. / N.O. with spring contact	<7	± 4	.21 (.09)
	17143000010	32-140 °F	100-250	max. 30 W	N.O. / N.O. with spring contact	<7	± 4	.21 (.09)

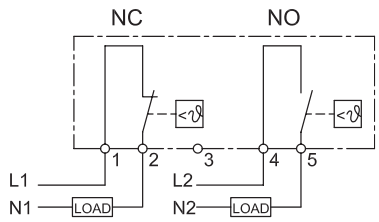
Additional Data	FLZ 541	FLZ 542	FLZ 543	
Operating temperature range	-40 ... +176 (-40 ... +80)			°F (°C)
Connection	screw terminal for cable cross-section 0.5 to 2.5 mm²			
Suitable for the operation of :	fan and heater	heater/alarm	fan/alarm	
Type of mounting	snap fastening for 35mm profile bars according to EN 60715			

[1]N.C. = normally closed / N.O. = normally open
[2]For 230 V AC operation only
Approvals (see the Quick Selection Chart found at the beginning of this section)

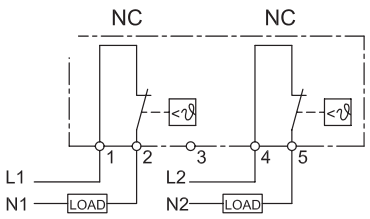
For additional technical data, drawings and manuals.
www.pfannenbergusa.com

Schematics

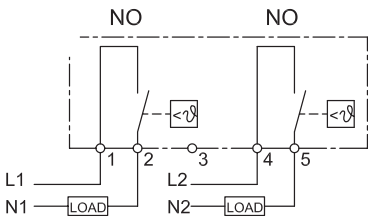
FLZ 541



FLZ 542



FLZ 543



Available Models:

FLZ 541-543
Twin Thermostats
(0-60 °C or 32-140 °F)

FLZ 600 - 610 | HYGROSTATS

The FLZ 600-610 Series Hygrostat and combined Hygrostat/Thermostat models are ideal for controlling cabinet heaters and Filterfans® when a relative humidity is exceeded. Hygrostats help to keep the relative humidity within an enclosure above the dew point, preventing the condensation of water on electrical components and the corrosion of unprotected sheet metal.

Ultra Compact Design
At just slightly over 1.5" wide and under 3" tall, this compact design easily installs into areas that have a limited installation space.

Durable Long-Lasting
With its rugged design and solid construction you can count on the FLZ Hygrostats to perform consistently over a long period of time.

Easy Mounting Options
Unit can be connected to a standard DIN rail **without tools** using the included snap fastener.

Energy Savings Solution
The FLZ 600 Hygrostat can control the operation of a Filterfan® or heater, turning it on when a preset relative humidity is exceeded. This provides an environmental balance through energy reduction.

The FLZ 610 includes an additional control for operation of a Filterfan® or heater, turning it off and on based on a set temperature.

UL Certified for 508A Panels
Thermostats are UL Recognized allowing for integration into UL 508A panels.

*Note: The size listed on this page is for the FLZ 600. Please see the chart on the opposite page for dimensions of our FLZ 610 Model.

For additional technical data, drawings and templates. www.pfannenbergusa.com

FLZ 600-610 Series Hygrostats / Hygrostats-Thermostats

Model Number	Part Number RAL 7035 (Light Grey)	Setting Range RH	Input voltage (VAC)	Max switching power (A) 115 VAC	230 VAC	DC	Type of contact	Switching Temperature difference	Switching point tolerance (K)	Width in (mm)	Depth in (mm)	Height in (mm)	Weight lb (kg)
FLZ 600	17207000000	40-90% R.H.	N/A	5 (.2)[2]	2 (.2)[2]	30 W	Mechanical hygrostat, changeover with spring contact	approx. 5%	± 4	1.46 (37)	1.85 (47)	2.36 (60)	.12 (.05)
FLZ 610	17218151000	40-90% R.H. / 32° - 140° F (0°C to + 60°C)	115	8 (.3)[2]	8 (.3)[2]	4 A	Electronic hygrostat-thermostat combo device, changeover/ relay	approx. 2 K ± 1 K / approx. 4% R.H. ± 1%	± 4	2.32 (59)	1.5 (38)	3.17 (80.5)	.18 (.08)
	17218100000	40-90% R.H. / 32° - 140° F (0°C to + 60°C)	230	8 (.3)[2]	8 (.3)[2]	4 A	Electronic hygrostat-thermostat combo device, changeover/ relay	approx. 2 K ± 1 K / approx. 4% R.H. ± 1%	± 4	2.32 (59)	1.5 (38)	3.17 (80.5)	.18 (.08)

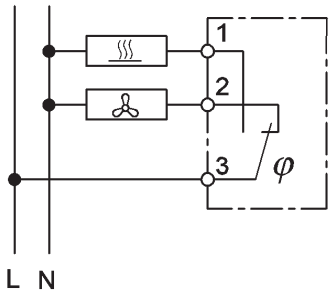
Additional Data	FLZ 600	FLZ 610	
Operating temperature range	+30 ... +140 (0 ... +60)	-4 ... +140 (-20 ... +60)	°F (°C)
Connection	screw terminal for cable cross-section 0.5 to 2.5 mm²		
Suitable for the operation of :	fan and heater		
Type of mounting	snap fastening for 35mm profile bars according to EN 60715		

[1]N.C. = normally closed / N.O. = normally open
[2]Max. switching power value in brackets ( ): inductive load at cos φ = 0.6
Approvals (see the Quick Selection Chart found at the beginning of this section)

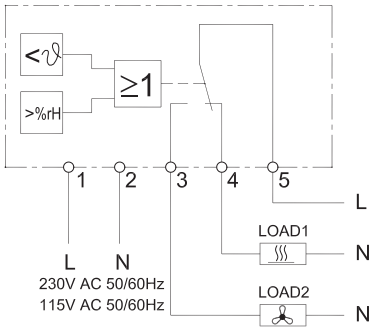
For additional technical data, drawings and manuals.
www.pfannenbergusa.com

Schematics

FLZ 600

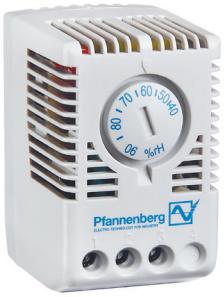


FLZ 610



Available Models:

FLZ 600
Mechanical Hygrostat
(0-60 °C or 32-140 °F)



FLZ 610
Electronic Hygrostat/ Thermostat Combo
(0-60 °C or 32-140 °F)

SIGNALING TECHNOLOGY

Rugged, Modern Signaling Devices for Improved Safety and Efficiency

Pfannenberg's visual and acoustic signaling devices satisfy numerous alarm, warning, and indication requirements, including: machinery operating status, process monitoring, system startup, and building or area evacuation due to fire, toxic gas leak, chemical spill, or intruder alert. With rugged construction and the ability to withstand severe environments (industrial, marine, mining, building, energy, transportation), Pfannenberg's signaling solutions are the only choice for improved safety and efficiency.

Alarm: Used when immediate evacuation is needed for emergency situations. These are high priority situations.

Warning: Used to alert personnel of nearby danger or a process or condition is in need of attention. These are medium priority situations.

Indication: Used to inform machinery operators of certain functioning conditions, or nearby personnel of the status of a situation which is generally low priority. The illumination requirement is typically limited to a localized area.

SIGNALING TECHNOLOGY

PY X-S-05 | PYRA SERIES FLASHING LIGHTS

5 Joules (50 cd) | 60 flashes per minute

Connection
Simple electrical connection on the bottom of the casing.

SSM
Optional with Soft-Start-Module for reduction of starting current.

Safe and simple mounting
Installation options with external lugs or internal holes.

Panel mounting
Suitable for panel mounting.

IP 66
High protection system.

Colors
Housing colors: red | grey
Lens colors: clear | white | yellow | amber | red | green | blue.

IK08
Impact-proof lens.

Modular design
Housing can be easily stacked side by side.

Approvals
EN 54-23 | VdS | UL | EAC
option: GL | MED.

10 YEARS WARRANTY

PY X-M-05 | PY X-M-10 | PY X-L-15
PY X-MA-05 | PY X-MA-10 | PY X-LA-15

PYRA SERIES FLASHING LIGHTS / FLASHING LIGHT SOUNDERS

5 Joules (50 cd) | 10 Joules (149 cd) | Adjustable flash rate, 100 dB (A)

4 different flash rates
Choice of four different flash rates via DIP switch (0.1 | 0.5 | 0.75 | 1 Hz).

IK08
Impact-proof lens.

Panel mounting
Suitable for panel mounting.

Safe and simple mounting
Installation options with external lugs or internal holes.

Approvals
EN 54-23 | VdS | UL | EAC
option: GL | MED.

reddot award 2015
winner

Multi-flashing light systems
Providing full synchronization on multi-flashing light systems.

Colors
Housing colors: red | grey
Lens colors: clear | white | yellow | amber | red | green | blue.

IP 66
High protection system.

Options
Integrated inrush current limitation and under voltage detection.

10 YEARS WARRANTY

For additional technical data, drawings and templates. www.pfannenbergusa.com

PA 1-20 | PATROL SERIES SOUNDERS

105 - 122 dB (A)

Pfannenberg
ELECTRO-TECHNOLOGY FOR INDUSTRY

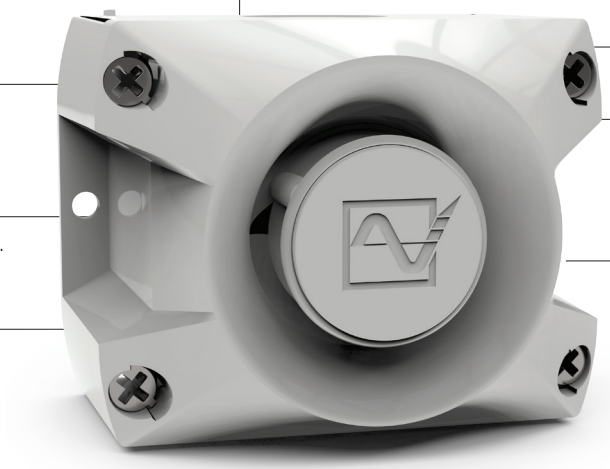
reddot design award
winner 2013

Connection
A single terminal block in the base supports all wiring connections.

IK08
Impact-proof housing.

Safe and simple mounting
Internal and external mounting capabilities.

Mounting options
Panel mounting and surface mounting capabilities.



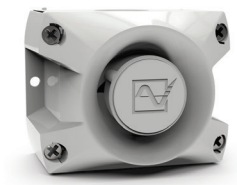
Colors
Housing colors: red | grey

IP 66
Fastener holes are outside the sealing area – IP rating cannot be compromised.

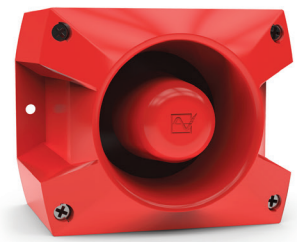
Approvals
EN54-3 | VdS | UL | EAC | RS option: GL | MED | CNBOP.

10 YEARS WARRANTY

Available Models:



PA 1
105 dB (A)



PA 5
107 dB (A)

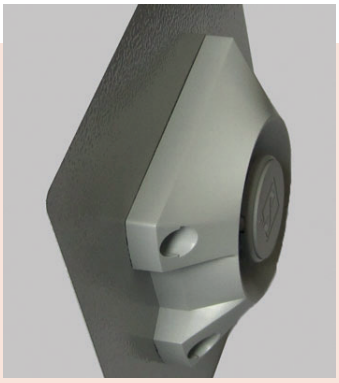
PA 10
117 dB (A)

PA 20
122 dB (A)

DID YOU KNOW?

The PATROL PA 1 Sounder is available as a dedicated flush panel-mount version, which includes self-tapping panel screws and mating electrical connector (the back box is not included). Panel mount adaptation kits are available for all PATROL sounders.

Visit www.pfannenbergusa.com for additional information and part numbers.



PA X 1-05 / 20-15 | PATROL SERIES FLASHING SOUNDERS

5-15 Joules (50-265 cd) | 105-122 dB (A)

Connection
1-person assembly in rooms with high ceilings. Automatic contact of top part to bottom part when assembling.

Safe and simple mounting
Internal and external mounting capabilities.

IK08
Impact-proof.

Mounting options
Panel mounting and surface mounting capabilities.

Colors
Housing colors: red | grey
Lens colors: clear | white | yellow | amber | red | green | blue.

IP 66
Fastener holes are outside the sealing area – IP rating cannot be compromised.

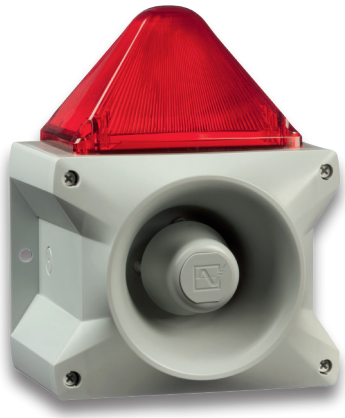
Economical
All screw terminal clamps are redundant to support daisy-chaining of multiple sounders.

10 YEARS WARRANTY

Available Models:

PA X 1-05
5 Joules (50 cd)
105 dB (A)

PA X 5-05
5 Joules (56 cd)
107 dB (A)



PA X 10-10
10 Joules (149 cd)
117 dB (A)

PA X 20-15
15 Joules (265 cd)
122 dB (A)

For additional technical data, drawings and templates. www.pfannenbergusa.com

BR 35 | SIGNAL TOWERS

Ø 35 mm | 3 W | 4 W

Pfannenberg
ELECTRO-TECHNOLOGY FOR INDUSTRY

Visual
The light is amplified by the internal prisms of the impact-proof, heat-resistant and dust-proof polycarbonate lens and can be easily identified from all sides.

Modular design
Modular design with 6 different color elements and 4 mounting methods offers endless combination possibilities.

Mounting methods
Stand mounting | plinth mounting | tube mounting | panel mounting.

Applications
For use in electronic production, in laboratories, in medical technology and in all other indoor applications.

6 lens colors
Clear | yellow | amber | red | green | blue.

IP 54
High protection system.

Design
Appealing design with a diameter of just 35 mm.

Connection
Connecting terminals;
single wire: 1.5 mm^2,
fine wire: 0.14 -1.5 mm^2.

BR 50 | SIGNAL TOWERS

Ø 54 mm | 5 W | 85 dB (A)

Visual
The light is amplified by the internal prisms of the impact-proof, heat-resistant and dust-proof polycarbonate lens and can be easily identified from all sides.

Modules
Continuous light | blinking light (1.5 Hz) | flashing light | sounder module 85 dB (A).

Mounting methods
Mounting stand | tube mounting | direct mounting.

Applications
Modular design with sturdy housing for all indoor and outdoor applications in tough conditions.

IP 54
High protection system (optionally IP 65).

6 lens colors
Clear | yellow | amber | red | green | blue.

Easy handling
Flexible building kit system guarantees easy handling.

Variable
Up to 5 modules with 6 lens colors can be combined as desired by simply plugging together, even retrospectively.

The Pfannenberg Group Worldwide Support

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